

★ MODEL AIRPLANE NEWS

JANUARY 1954

25 CENTS



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D. K. Smith

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Radio-controlled for both
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1953
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RADIO CONTROL
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The Beam is tops
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Complete with full size plan, ac-
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MOTOR UNIT NOT INCLUDED

| | |
|----------------|-------------------|
| Wing Span | 50.25" |
| Wing Chord | 8.25" |
| Effective Area | 372" |
| Body Length | 35.25" |
| Flying Weight | 36.5 oz. |
| Wing Loading | 14-16 oz. |
| Power | .60 to .14 |
| Category | Radio & Sport |
| Ability | Contest & Trainer |

Designed
and
flown by
LOU
ANDREWS



Maneuvers performed by "Beam" in winning
the 1953 International Radio Control Event.

PRECISION FLYING

1. Unassisted R.O.G.
2. 500 foot straight flight
3. 90° turn left
4. 270° turn right
5. Straight flight return over transmitter
6. Figure "5"
7. Figure "8"
8. Rectangular pattern
9. Spot landing

STUNT FLYING

1. Unassisted R.O.G.
2. 500 ft. cross country
3. Wing over
4. Immelmann
5. 3 consecutive loops
6. Power dive
7. Spiral dive
8. Touch and go
9. Precision landing
10. Spot landing

GUILLOW'S Die-cut Balsa
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Stinson Voyager
N. A. F-86 Sabre
N. A. P-51 Mustang
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Northrop F-89 Scorpion
Vought F7U Cutlass
Grumman F9F Panther
Lockheed F-80 Shooting Star
Russian MiG-15
Curtiss P-40 Warhawk
Republic P-47 Thunderjet
Aerona Champion
Republic F-34 Thunderjet
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Piper Cub
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McDonnell F2H-1 Banshee
Curtiss P-40 Warhawk
Lockheed P-38 Lightning
N. A. B-45 Tornado
North American T-28 Trainer
Boeing B-47 Stratojet
Convair B-36 Bomber
Republic F-84 Thunderjet
Lockheed C-69 Constellation
N. A. F-86 Sabre
Boeing B-29 Superfortress
Russian MiG-15
Sikorsky H-5
Vought F7U Cutlass
Transport
Northrop F-89 Scorpion
Martin B-57A Canberra
Grumman F9F Panther
Fairchild C-119 Packet

50¢ each

Boeing B-47 Stratojet
McDonnell F2H-1 Banshee
Convair B-36 Bomber

25¢ and 50¢ kits have plastic
canopy and prop disc.

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GUILLOW'S famous
FLYING MODEL CONSTRUCTION KITS
10¢ 25¢ 50¢ and \$1.00 each

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PAUL K. GUILLOW

WAKEFIELD
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If not available at your Hobby Dealer send direct to the factory adding 15¢ to all mail orders.



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Just take the controls of an A-J Firebaby and you'll know what we're writing about. Feel the tug of the engine as your plane strains to leap into the air... feel it respond to every movement of your wrist as it streaks for altitude... know the thrill of a full power dive... and how easy it is to do stunts!

Flying is easy with an A-J Firebaby. Buy it ready to fly, complete with engine, controls and lines; all parts finished, painted and fuelproofed. Span 19 in., wt. 3 oz. Available with or without engine, single wing or biplane.

With engine, as low as **\$7⁸⁵**

Without engine, from **\$2⁵⁰**

Jim Walker
A-J AIRCRAFT CO.

Portland 12, Oregon, U.S.A.



MODEL AIRPLANE NEWS

25th Year of Publication

JANUARY 1954

Vol. I—No. 1

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by
William
Winter



► Nineteen fifty-three will be remembered as the year that America won both the Wakefield Trophy and the International Power Event. The finals, at Cranfield, England, were the most sensational and exciting of any contest ever held. The stories that came back, printed in this magazine and others, the pictures, the plans, the ideas, and interest now created for next year, have given all of us a big thrill.

This wonderful thing is possible because a few among us, The American Committee for International Competition, of the AMA, take on the thankless job of digging up the wherewithal. This last year's expenses were to be financed largely through sales of a booklet called the 1953 International Competition, to be found at most hobby shops. In its 44 pages are some splendid articles on Wakefield and FAI models, detailed dope, plans and drawings. It's worth having. What's the pitch?

Unless we modelers give this book our support, America's participation in world modeling events may be at an end. There's a deficit now of \$6,000. To sum it up, we—you and I—apparently do not think America's modeling prestige is worth 35 cents, the price of the booklet. If you want to do something about this disgraceful situation, go down to the hobby shop and buy your Handbook.

► To MAN at Work's plea for simplified FAI rules, response has been hearty. Suggestions have varied from processing winning models *after* they have been flown (what if the ship is lost?) to letters many pages long. Before surrendering the soap box to a couple of more indignant citizens, MAN at Work emphasizes that he has no opinions (for once) upon the matter. Be careful when you wave that 12-gauge around!

(Continued on page 4)



PLANE ON THE COVER

In 1929 the Navy released information on its new Curtiss XF8C, shown as this month's memorable Kotula cover painting. At first equipped with a 425 hp Pratt & Whitney Wasp engine, it was then termed a two-seat shipboard fighter. Its ability to dive vertically with bomb load earned it the name "Helldiver." Through subsequent modifications it gradually acquired more power and, by 1932, as F8C-7, had ring cowl, wheel pants, and cockpit canopy. In all versions the rear seat man operated the swivel guns. Span was 32 feet. Top speed of job on cover was 136 mph, cruised a lively 109 mph.



NEXT MONTH'S COVER

The Supermarine Swift, jet propelled descendant of the immortal Spitfire, is one of Britain's first line interceptors, the other being the Hawker Hunter. Flown over the African desert, the Swift recently made comparable high speed runs to those achieved by our Sabre 100 and Douglas Skyray. Powerplant of this swept wing fighter is Rolls Royce Avon.

**"HERKY says:
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a Hobby HOLIDAY
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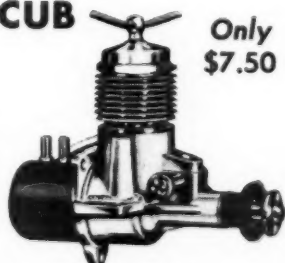
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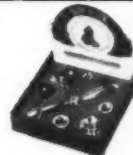
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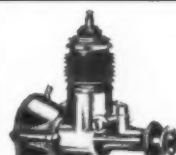
"OK" GLOW FUEL
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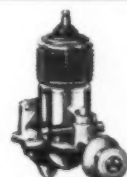
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"Assemble-it-Yourself"
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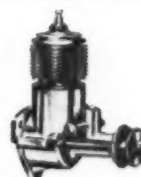
"OK" CUB .049X
Combination Pkg.
\$5.75



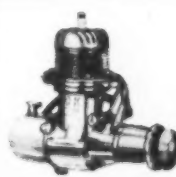
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TD-1—TWO-MINUTE ASSEMBLY KIT for those who like to "build their own", including SPACE BUG .049 engine, less accessories. Beautiful 25 inch gift box **\$15.95**

Man at Work

(Continued from page 2)

"Your comments (FAI) might well be applied to present AMA nying scale regulations," begins Chuck Wood, Seattle Skyhawks. "Our club has been pressing for simplified flying scale regulations. Our district vice president, Ted Enticknap, is also urging the simplification of rules with an enlargement of present flying scale regulations."

Specifically, Wood believes the rules are wrong because power is limited to Half-A engines, with rubber, jetex, and CO-2 barred altogether; that, although appearance is stressed, the rules reverse themselves by giving a multiplication ratio to flying (you can build a model out of scale with contest type proportions and still win, even though appearance is poor); the point system is complicated, requiring the interpretation of a skilled judge, and a still more skilled judge to apply them.

The Skyhawks have been experimenting with simplified rules of their own. Flying and appearance points are split 50-50 to make a 100 point total. Realism and smoothness of flight are stressed. The judge observes the flight and awards up to 10 points each for ROG, climb, transition from power to glide, and landing, for a total of 40 points. If the ship remains in the air for more than 40 seconds the additional 10 points (to add up to 50) are awarded. Wood claims this procedure is easily carried out. All the judge does is score the various stages of the flight. Excellent is 10-9; good, 8-7; fair, 6-5; poor, 4-2. A timer checks duration for the extra 10 points. Without emphasis on duration beyond 40 seconds, flights run about a minute, reducing the danger of lost models and the need for large fields. That about sums up the Pacific Northwest sentiment.

Scale boys certainly don't see eye to eye—this probably will develop into a shooting war. To poke up our battered old felt on a precautionary stick, we'd say that radical departures and sweeping changes in rules for any event always require years of difficult adjustments. So before we go correcting rules that were supposed to be corrected, and end up with corrections needing more corrections, how about a few compromises by all hands? Rules evolve from experience, so the sooner we set evolution to working, the better off we'll be.

► Nor is all serene in U-control scale. The old battle over stunt or no-stunt, while currently favoring the no-stunt boys, is not a closed issue. Both factions usually agree that scale is getting a dirty deal from contest management. Before this gets any more complicated, we are going to ask Chuck Wood to turn over the soap box to Murray Hamilton, Topeka, Kan., who has a real tear jerker: "U-control scale," says Murray, "has all but been eliminated from contests in these parts. That just won't do. Scale is still the backbone of the hobby-sport and U-control is the only way you can fly any type of scale model with a margin of safety. But the contest directors around here say, 'Well, in the past, entries dwindled from year to year until the event was no longer feasible.' Those scale events were almost always tacked onto the end of the contest program. Other events have a way of getting dragged out by contestants failing to get in their official flights for one reason or another—often the wind. Then, when everybody is tired and the spectators are beginning to go home, the contest directors tell the scale boys to hurry up and get those flights in. Then prizes are given out in rotation and they often get pretty scrappy by the time scale is called up. I'll save it for the Nationals' is the usual result.

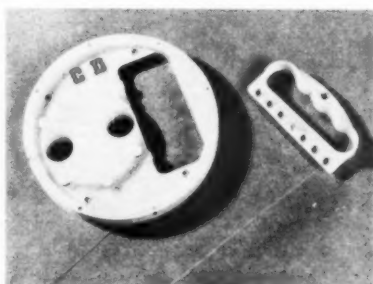
(Continued on page 8)

TRADE SHOW

MONTHLY REVIEW OF NEW PRODUCTS, OTHER INTERESTING ITEMS WORTH ATTENTION



► **Field Strength Meter:** Transmitters, too, can get out of tune or malfunction, so for reliable radio control flying it is helpful to know at all times that X-mitter is putting out good signals. Manufactured by Hobby Enterprises, this meter measures 4 x 4 x 2 and requires no batteries. List is \$15.95.

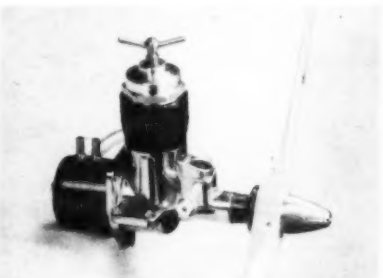


► **Handy Reel:** Combination reel, handle by Consolidated, is made of impact plastic, tough and durable. Handle fits in opening when not in use. Reel may be wound quickly by putting finger, dowel, etc., through center hole and using second hole to rotate. Note adjustable line holes on handle. Price: \$2.95.



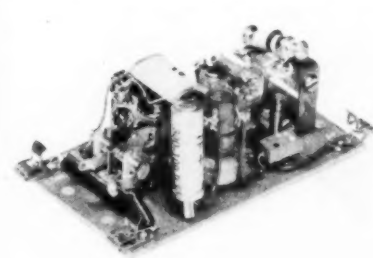
► **Texan AT-6 Trainer:** Prefabricated kit of world-famous World War II airplane for Half-A engines, by Scientific Model Airplane Co., has 18 inch span, Jim Walker control system. Fuselage is carved, metal cowlings formed, decals, hardware, rubber wheels, plans. AT-6 was SNJ. Retail \$1.95.

► **Cub Diesel:** One of the engines America has been waiting for, a Diesel of .075 displacement. Manufactured by Herkimer Tool & Model Works, this Diesel weighs 2



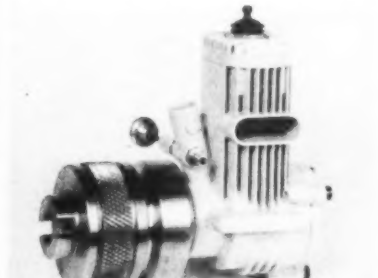
ounces, is 2 5/8 inches high. Companion item is OK Cub Diesel fuel. High torque of Diesel is especially noted when bigger, heavier models have to be flown. Mounting is either beam or radial. Price is \$7.50.

► **Citizen-Ship Receiver:** New AR 465 receiver is tunable on the field. Generally similar to the CR receiver, still on market, the AR has eliminated the metal frame



antenna, can fit in fuselage 2 1/2 inches wide, small motored ships. Tested samples indicate this equipment is reliable and possessed of extreme range and sensitivity. On one side of chassis. Priced at \$22.95.

► **Marine Engine:** Boat fans delight in this heavy duty engine designed especially for powering boats where cooling frequently gives troubles, as RC fans attest. Unique

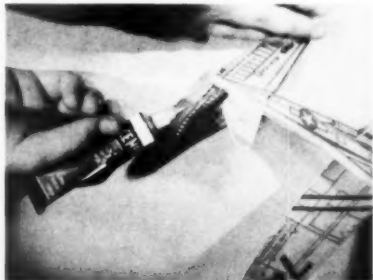


feature is a governor porting which keeps the engine from "running away" when no load is applied. This Cameron Precision Engineering Co. product is of .09 displacement, in two models: single jet, at \$9.95; double, \$11.95. Grooved flywheel, cord.

► **Squeeze Bulb Pump:** For filling tanks, priming engine, this rubber bulb pump by Sullivan Products comes in two sizes: 2 ounces (59¢) and 4 ounces (69¢). Convenient feature is dent-proof cap that fits any fuel can. Eliminates spilled and wasted fuel, or messy operation. Squeeze it, it fills.



► **Handy Hypo:** Hypodermic needle type of tool, fits onto cement tubes, eliminating clogged holes, wasted cement. Needle is 1 inch long, with an .049 outside diameter and .033 inside diameter. Made of steel, it is everlasting. Can also be fitted into other tubes. By Gaunt Industries: 55¢, 3 for \$1.



► **Merco Battle Tanks:** Famed Patton 48, and General Sherman, made by Mercury Model Airplane Co., are prefabricated. Die cut balsa parts. Features include rotating turret, formed bogie wheels, lights, die-cast guns, plastic parts, shovel and pick axe, colored decals, contoured blocks, plans. \$2.95.



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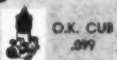
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It's a terrific short ship—the biplane version of the famous FIREBABY. 19" span. Painted and sub-proofed. Complete with "Supercharged" Royal Spitfire engine.



Thimble
Drome TD-1

\$19.95

Of course you've heard of it. This completely assembled deluxe model features an all-aluminum wing (24" span). Comes complete—ready to fly—with Stinson Big engine, control reel, battery wires, control lines, etc., etc.



JETEX JET
HELICOPTER

Fly this exciting JET HELICOPTER a few minutes after you open the box. It's powered with 2 Jetex #50 engines. The model is completely prefabricated—all parts (balsa & plastic) are attractively finished and decorated. 24" rotor span. Comes complete with engines and fuel.



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Top notch performers. All balsa free-flight championship models. Equipped with O.K. .039 engine and all accessories.



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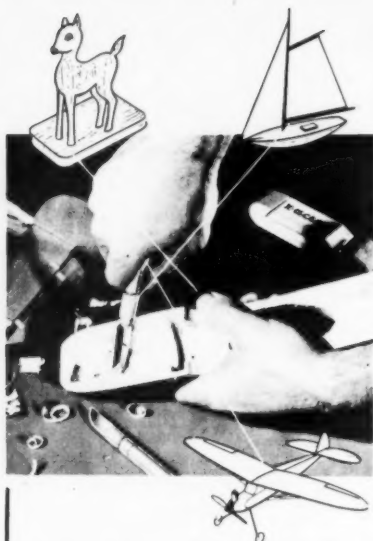
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440 Fourth Avenue, New York 16, New York

Man at Work

(Continued from page 4)

"Now scale events at the Nats are fine, but I'd hate to see it become a strictly Nats event and eventually end up as scale rubber did—a sort of expert's-expert event with few entries and not much enthusiasm.

"Perhaps scale will always be a sort of 'Wakefield' thing," Murray goes on, "where only a select group are willing to expend the effort to perfect their machines. But I don't think it has to be if it is treated right by directors and contestants alike. The pressure boys who got stunt taken entirely out of scale are a bunch of old-maids. My advice to them is that they go back to solid models. If we insist that scales are just too, too pretty to take risks with, we're taking the flying out of flying scale. And, Sir, that is certainly death to controlline scale in my opinion. What should have been done instead of taking stunt from scale is some careful revision of rules and point-award procedures which would give other non-stunting models the same chance to win as stunting models. I can't see where that would have been too hard.

"It's true that stunting a model requires deviation from true scale where wing section and stabilizer areas are concerned,

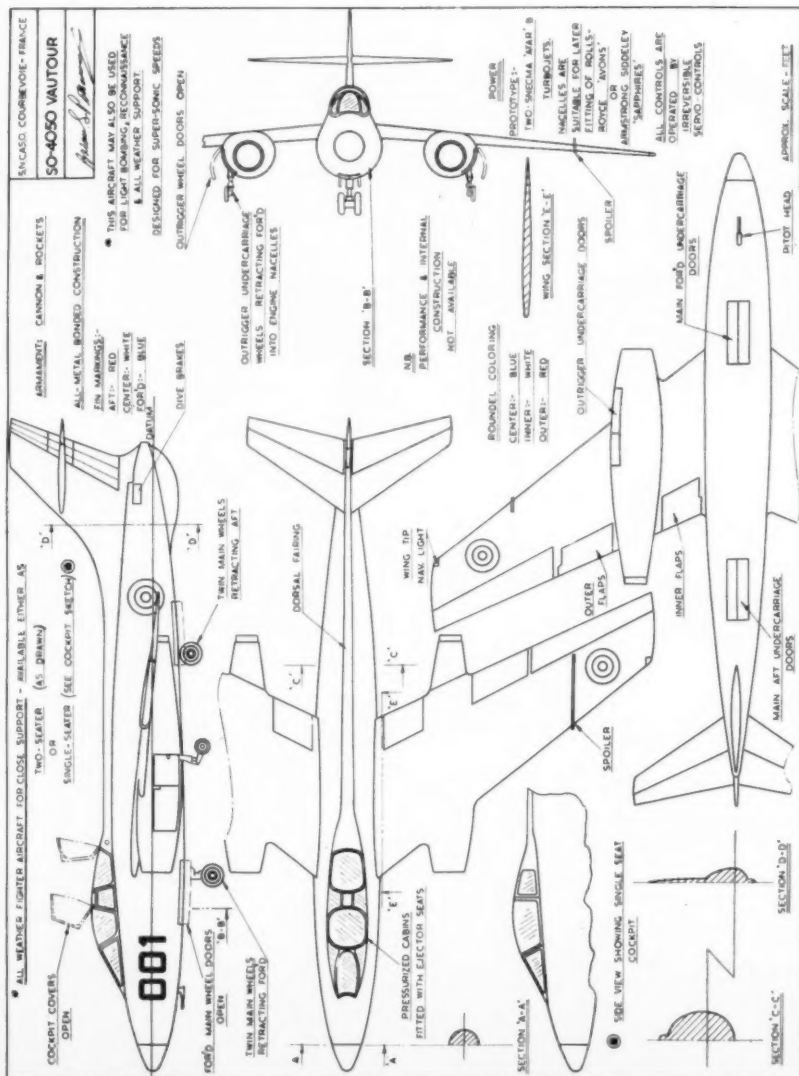
but this should be judged for loss of points which would give a handicap to stunters and please the round-and-round boys.

"I know how the scale boys feel about that lovely ship of theirs that took a thousand or so hours to build. They make realistic but heartbreaking clobber jobs. But risk is part of sport.

"Perfectionism is needed to get good flying scales. But let's not get em so perfect they can't fly. You might be surprised at how few scales at contests get their five or ten laps required. One big fault—underpowering. We attribute our success here partly to the big .60 Atwoods and Orwick ignition engines—no need for fuelproof dope, and as dependable as the day is long, with enough power to get some extra weight around. We regret the passing of these sweet .60's!" Thank you, Murray Hamilton.

▶ The day one of the younger members of our flying circus almost burned down the house, decided to soothe singed nerves with a few long flights of the big Live Wire. Outside of falling into an elephant trap, dug by some saboteur, transmitter and all, while the ship tried to escape over the horizon, it was an effective prescription. One of those

(Continued on page 42)





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This Christmas choose Monogram Models for yourself and for gifts to your friends. Enjoy tops in fun . . . give gifts of fun to others . . . with famous Monogram kits. They're the most detailed of all models you know . . . and so easy to build with plastic and other finished parts. Tell dad and mother you want Monogram kits.



B-25 MITCHELL

The most famous medium bomber of all time. Flown by General "Jimmy" Doolittle. Photo of actual model. \$2.95

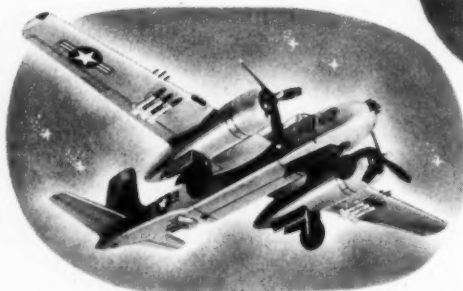
B-26 INVADER

Fastest of all World War II attack bombers. In service in Korean conflict too. Photo is actual model. \$2.95

At the Top of the Christmas Gift List!

Tops for any gift list or to get for yourself, are the new Speedee-Bilt De Luxe twin engine bombers. Many dealers have them with an extra, colorful Christmas wrapping.

These bomber kits are extra special! Completely finished plastic and balsaparts that go together in a jiffy.



34 Fine Models to Choose From * Each the Best Possible Gift!!

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| <p>Speedee-Bilt Warhawk • \$1</p> | <p>Speedee-Bilt Mustang 85c</p> | <p>Jet Power Racer Midjet • 85c</p> |

In addition to those illustrated, most dealers stock all of these: **Speedee-Bilt Flying Models**—Piper Cub—Aeronca—Monocoupe—Ercoupe—Boeing Kaydet—Long Midget—Cessna—Seaplane—Navion—Thunderjet—Each 85c. **Superkits**—Corsair—Thunder-

jet, Each 89c. **Jet Power Racers**—Hot Shot, 70c. Terra Jet, \$1. Mono-Jet, 85c. Aqua Jet, 60c. **Ships**—Battleship Missouri—Cruiser Chicago—L.S.T. 608—Carrier Shangri-la, Each \$1.25. **Control Flyers**—Aeronca, \$4.95.

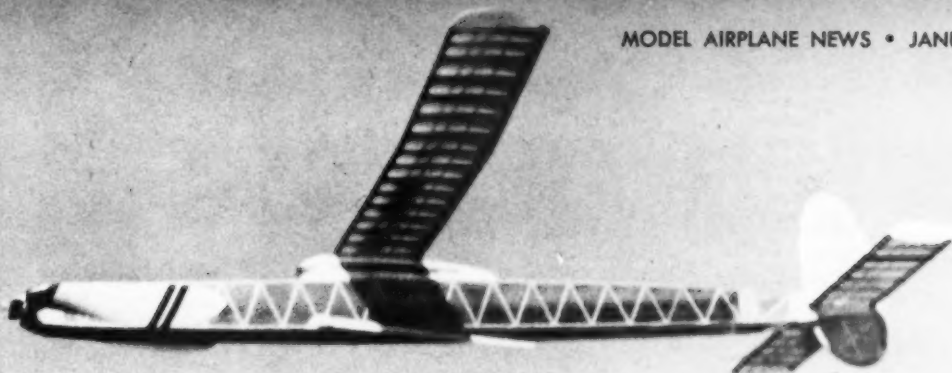
If no dealer near you order from address below. Add 25c for postage and packing. 35c for bomber and control line kits.



Monogram Models, Inc.

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WAKEFIELD WINNER

Truly a world beating glide gave Foster's job an extra minute over the Argentine and British ships in the fourth round fly-off to win cup.

Exclusive drawings for both Foster's 1953 and 1954 designs. If any ship in the world today can be called the plane to beat, this is it. Built and flown properly, it almost guarantees limit flights.

By **JOE FOSTER**

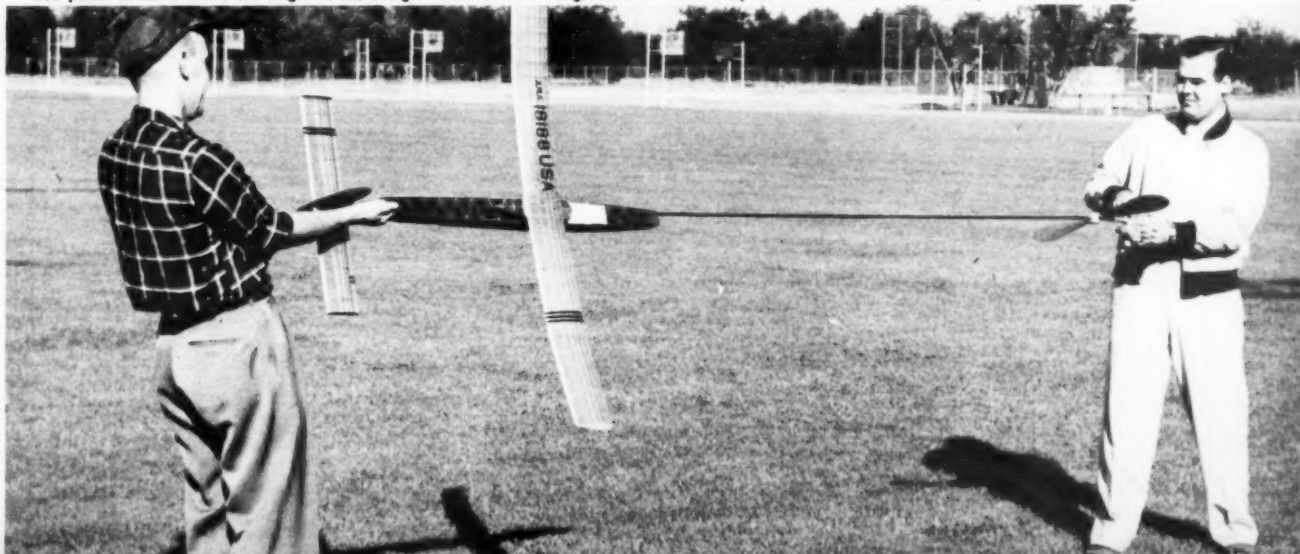
► It was about 7:30 in the evening at Cranfield, England, August 3, 1953 and the culmination of what many consider the most exciting and tense Wakefield meet ever was about to take place.

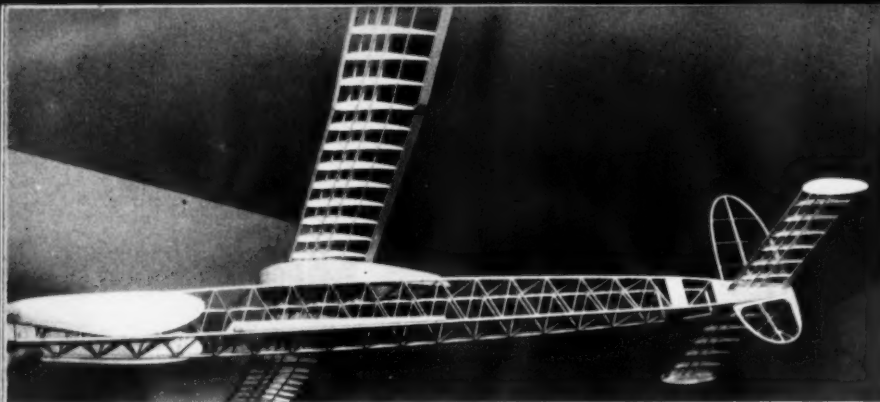
E. Scotto of Argentina, Hugh O'Donald of Great Britain and myself had just finished check weighing our ships for the officials in preparation for the fly-off to decide who was to hold the Cup for 1953. As each of us, with his respective timers, judges and helpers, walked toward the take-off area, I thought of how lucky I'd been getting three maximum flights with only one ship as I had completely washed out my spare on a test flight two days previously. I wondered whether the rubber that I had just put in would hold for the maximum winds I was about to give it. A feeling of real tension came over me as I realized that this was it. This was what the months of building and testing were for. I felt as though this were my first contest.

My thoughts shifted to the weather and I glanced at the wind indicator atop the small weather station not far away. The vanes were motionless, the sun was low on the horizon and there was no indication of thermal action. "This is your kind of air, Joe," I said to myself. Suddenly all thoughts were disturbed for Dave Kneeland, one of my helpers, with George Reich was calling, "Over here Joe, there's a big juicy thermal right here." His humor relieved some of the nervous strain, and at his insistent words, "Now let's settle down and get the ship wound," I started what for me is always a nerve racking chore. As I was putting the last turns into the top motor, E. Scotto was just taking off. A few seconds later I was setting the ship down on the runway in the direction indicated by Dave and, swish, it was off and climbing beautifully in its tight right spiral.

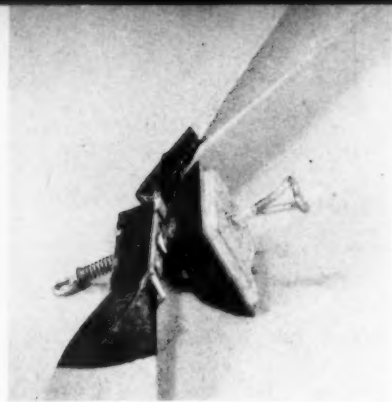
Another great feeling of relief came over me when I realized that so far so good. I didn't take my eyes off the ship until the prop folded at about 800 feet., and started into its left glide a minute and a half later. Hugh O'Donald,

Joe packs in turns while Joe Bilgri holds. Design was evolved through several seasons by both men. Gears were used, but not for coming season.





When laying out the fuselage sides note that cross piece positions are transposed on far side, which allows triangulation of top and bottom cross pieces as well. Multi-spar wing is anti-warp.



A close-up of propeller assembly shows the details of the hinge, anti-bunching shaft hook.

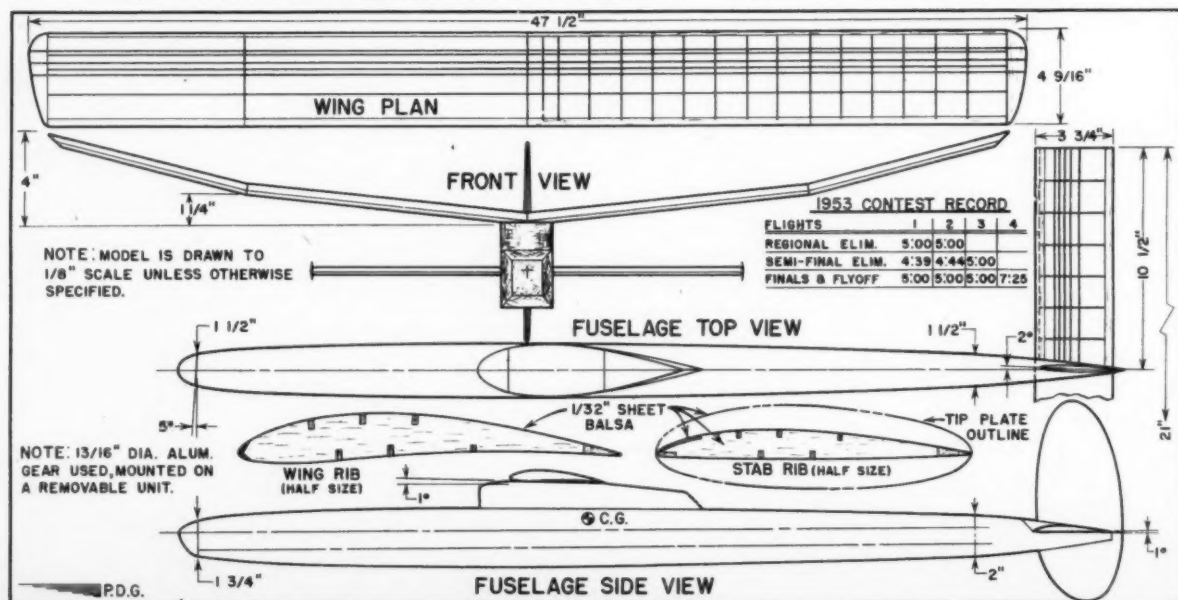
who had broken two strands of rubber and was delayed while tying them up, had just gotten away. His job was going up like a helicopter, not quite as fast as mine, but I believe he was higher when his prop feathered at two minutes. You could tell by the applause of some two thousand spectators that they were really thrilled at the sight of our ships gliding so close together, battling it out for one of the greatest honors in our sport.

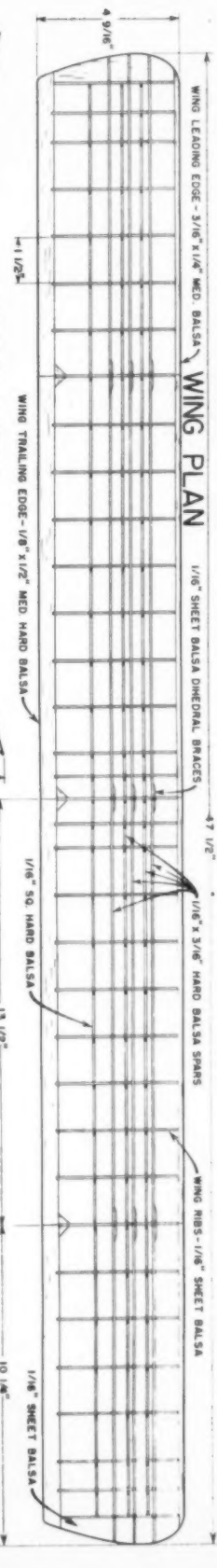
There was nothing we could do now but wait for the end. I walked over to the vacated weighing tent and sat down praying a little harder, I think, than I ever did before. The minutes that followed seemed like 30 seconds and I had no idea what my time was as the ship hit the ground. I ran over to my timers as they started from the take-off area and headed toward the Officials' tent to record the result. Glancing at their stop watches, I then hurried to watch the official time as Hugh O'Donald's plane was nearing the ground. I just couldn't realize that I had won as his timers clocked him down. A few seconds later the public address system announced: Joe Foster—7 minutes, 25 seconds; Hugh O'Donald—6 minutes, 20 seconds. A mixed feeling of joy and sadness came over me, joy because I had won, and sadness because I was sorry to see such a swell guy as Hugh lose in such a spectacular finish. In the hour that followed, the usual picture taking and autograph signing kept me busy. It was toward the end of this confusion, while team pictures

were being taken, that I was asked the name of my airplane. I had never named any of my ships before and this was no exception, so while I was sputtering and stammering for a suitable moniker, Cliff Montplaisir, a fellow team member, who certainly had more presence of mind than I did, spoke out, "Call it the Power to Weight." Thinking about it later, I realized that the name was actually quite suitable, for I believe the outstanding characteristic of this design is its power to weight ratio. Secondly, the ship has very good stability with a high performance glide.

The development of this design started in 1950 after we heard that Aarne Ellila had won the Wakefield with a geared model. Joe Bilgri, a very good friend and flying partner and myself put together a configuration of old Wakefield parts to check the possibilities of a return gear design. At this time we were only interested in the power flight and with 4.5 oz. of T56 in a 4 oz. airframe, we noticed that there were no great visible dividends being paid off on the initial flights. We were not discouraged, though, and the possibility of getting away from the headaches of tensioned motors led each of us to build a gear job for the coming 1951 eliminations. It was in January '51 when these ships were completed. The designs were similar and used the same power: 20 strands of T56, 27 in. long. Although both ships were steady fliers with fair climbs, we considered them failures as they would do only 3:30 (Continued Page 33)

Author's 1953 Wakefield winner is shown below. The redesigned ship for 1954 rules is shown in detail, opposite page.

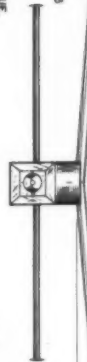




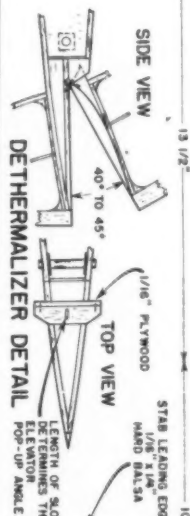
DIHEDRAL SKETCH

NOTE: SEAM LOCATIONS SHOULD NOT BE ALTERED AS THE EFFECTIVENESS OF THE AIRFOIL MIGHT BE IMPAIRED. NO TURBULATORS ARE NECESSARY.

MODEL IS COVERED WITH JAP TISSUE.. DOUBLE COVER FUSELAGE AND USE DOUBBLE SLIGHTLY PLASTICIZED DOWE TO SEAL THE SURFACES.



NOTE: COMPLETED CABIN SHOULD BE GLUED TO FUSELAGE AFTER MODEL IS COMPLETED AND BALANCED SO THAT THE CORRECT CENTER OF GRAVITY IS OBTAINED.

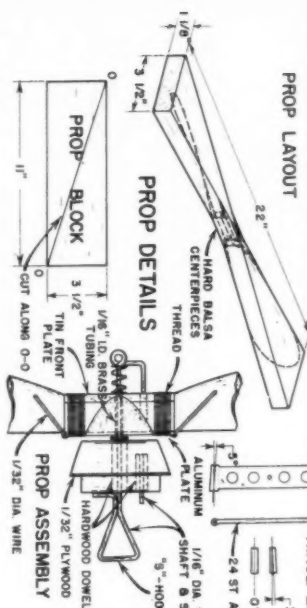


FUSELAGE TOP VIEW

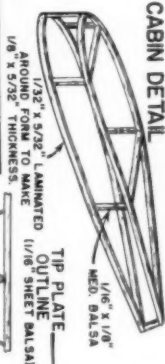


PROP LAYOUT

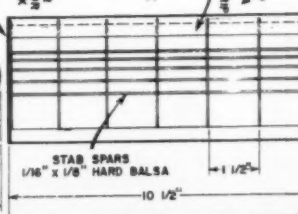
NOTE: BUILD IN 3" TO 5" RIGHT THRUST,
ADDING OR SUBTRACTING WHATEVER IS
NECESSARY WHEN ADJUSTING THE MODEL..



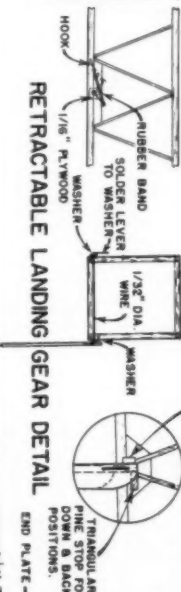
CABIN DETAIL



WING RIB

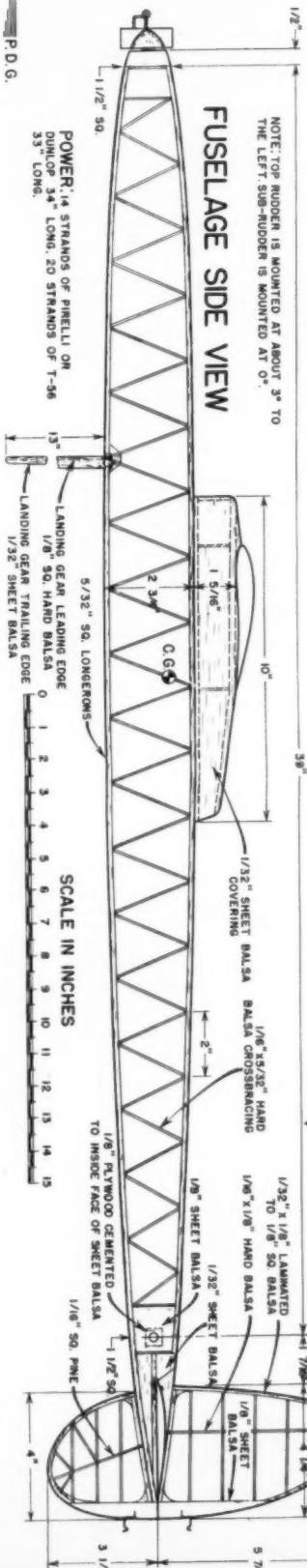
TRAPDOOR


RETRACTABLE LANDING GEAR DETAIL



FUSELAGE SIDE VIEW

NOTE: TOP RUDDER IS MOUNTED AT ABOUT 3° TO THE LEFT. SUB-RUDDER IS MOUNTED AT 0°.



P.D.G.

POWER. 14 STRANDS OF PIRELLI ON
DUNLOP 34" LONG. 20 STRANDS OF T-36
33" LONG.

SCALE IN INCHES

TO INSIDE FACE OF SHEET BALSAM



From the Japanese magazine Koku-Fan, comes this shot of American and Japanese boys at a Starfire base with flying model of ship in background.



Seven foot, nine pound, B-50 bomber, flying scale that won first at the Far East Model Airplane Contest, Tachikawa, Japan. Lieut. Francis Nixon. Below—Douglas AD-3, made from Erection, Maintenance, Structural Repair manuals, John K. Abbott, AMC, USN, has everything, flies well.



AIR WAYS



Sampling of this month's picture mail shows some intriguing ships.



Ducted fans getting larger. This Lavochkin, by B. Brooks, England, has 52 inch span and an Elfin 2/49 for power. Turns fanlike, interior prop.



WW I, free flight F.E. 8, Mills 1.3, at all Britain Rally. That's Christine Zaic, Jasco, on way home from Bled glider meet. Model, John Darnel.

Below—At the Jetex International Contest, in England, Mike Ingram proxy flew one of Larry Conover's Jetex 200-powered deltas, the U.S. entry.



When Berkeley suggested the Screamin' Demons sponsor an open water contest, a most interesting, experimental meet took place on Long Island Sound, with events for RC boats, float and hull jobs, both free flight, PAA Load categories.



With flying field in background, Don McGovern favors this seven-foot Frostbite, Spitfire .60. One minute run needs glasses, adventurous chase.



Hank Struck flew this 68 inch RC flying boat, on Arden .19. Features long, thin, NACA planing hull, knock-back tip floats. To be Berkeley kit.



Sailing, sailing! Camera man, J. Richards, who took these pictures, rides tow boat bringing back stalled load of lost-at-sea Half-A modelers.

Below—Water, water everywhere, and where does a radio model come down? You can't trust a tree anywhere, anytime. Struck's job flew well.



All balsa Pelican, from MAN plans, work of Paul Strauss. Inverted Cox Space Bug .049 has plenty of pep. Stab tip floats give water stability. Like most entries, Leon Hertzson's FAA-Load boat had take-off troubles with rough water. Had detachable hull, Torpedo .19 for 62 inch wing.





Do you have to fly from grass covered areas where a nose-over would lose a race? This sprung-forward gear forces the wheels ahead at all times.

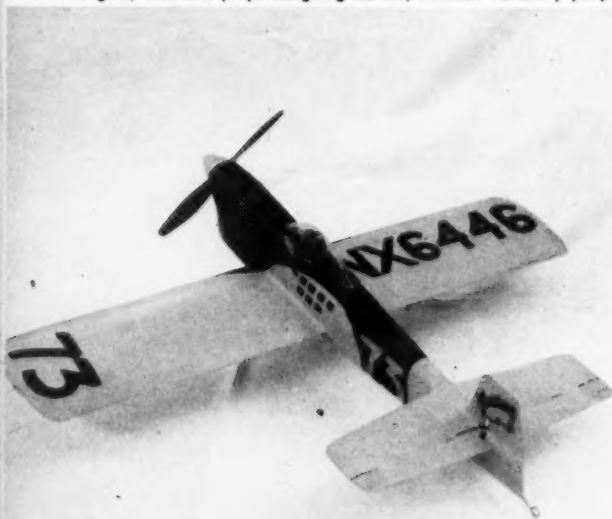
THE SHEIK



By KEN JOHNSON & ANDY WALSH

Tried and true team racer, developed in several seasons of competition, proved itself a rugged and consistent airplane.

Speeds vary from 75 to 93, and laps from 36 to 60, depending on engine, fuel and prop. Weighing 22 oz., Number 73 really jumps off.



► We have been following the progress of team racing as indicated by the plans and data printed in the model magazines and the current team racing kits that are on the market. We have found that something additional is necessary to be a consistent winner here in the Middle West and the Illinois-Iowa Aeronautical Assn., of which our club (The Galesburg Model Airplane Club) is a member.

The Sheik has been developed over a period of several years, and we hope this is the answer. This team racer has proven itself in contests as a rugged competitor. It is powered by a McCoy .29 Red Head, uses stock propellers and stock fuel. Two versions were built in 1952, one with a built-up silk covered wing, the other with the wing planked.

No. 73 has been flown with all types of props and fuel and the following data gives a hint as to its capabilities:

| | | | |
|-----------------|--------------------|--------|---------|
| 8-9 Power Prop | Thimble Drome Fuel | 93 mph | 36 laps |
| 8-9 Power Prop | Power Mist Fuel | 87 mph | 55 laps |
| 9-8 Power Prop | Power Mist Fuel | 83 mph | 55 laps |
| 10-6 Power Prop | Tiger "A" Fuel | 63 mph | 72 laps |
| 8-9 Power Prop | O & R Econ. No. 4 | 75 mph | 60 laps |

(The above times are with venturi restriction.)

The McCoy .29's only modification is a restricted throat. It starts very easily, with the average pit stop being less than 30 seconds to refuel and be airborne again.

We feel that we have a novel idea in our landing gear, as it is sprung forward to force the wheels to move ahead at all times. The reason for this is that all our flying is done in grass covered flight areas, and a nose-over would lose a race.

The construction is light, the ship weighing only 22 oz. It jumps away when released and flies very smoothly. Cut the 1/16 in. sheet wing ribs as shown on the plans, and assemble on the 1/4 in. square hard wood spar. The trailing edge is placed on top and bottom of ribs. Be sure and taper for a thin sharp trailing edge. The front planking is applied the same way. Next, cap strip the ribs with 1/4 x 1/16 in. medium balsa on both the top and bottom of the wing. Mount the bellcrank (small Veco) and flexible lead out wires, then install tips and shape as shown. Sheet the first section on each side of the center of the wing and sand entire wing smooth. Wing is covered after installation.

The fuselage is started by cutting the sides and formers as shown from 1/8 in. hard stock. (Continued Page 35)

"SHEIK"

MIDWEST TEAM RACER

WING AREA 132 SQ. IN.

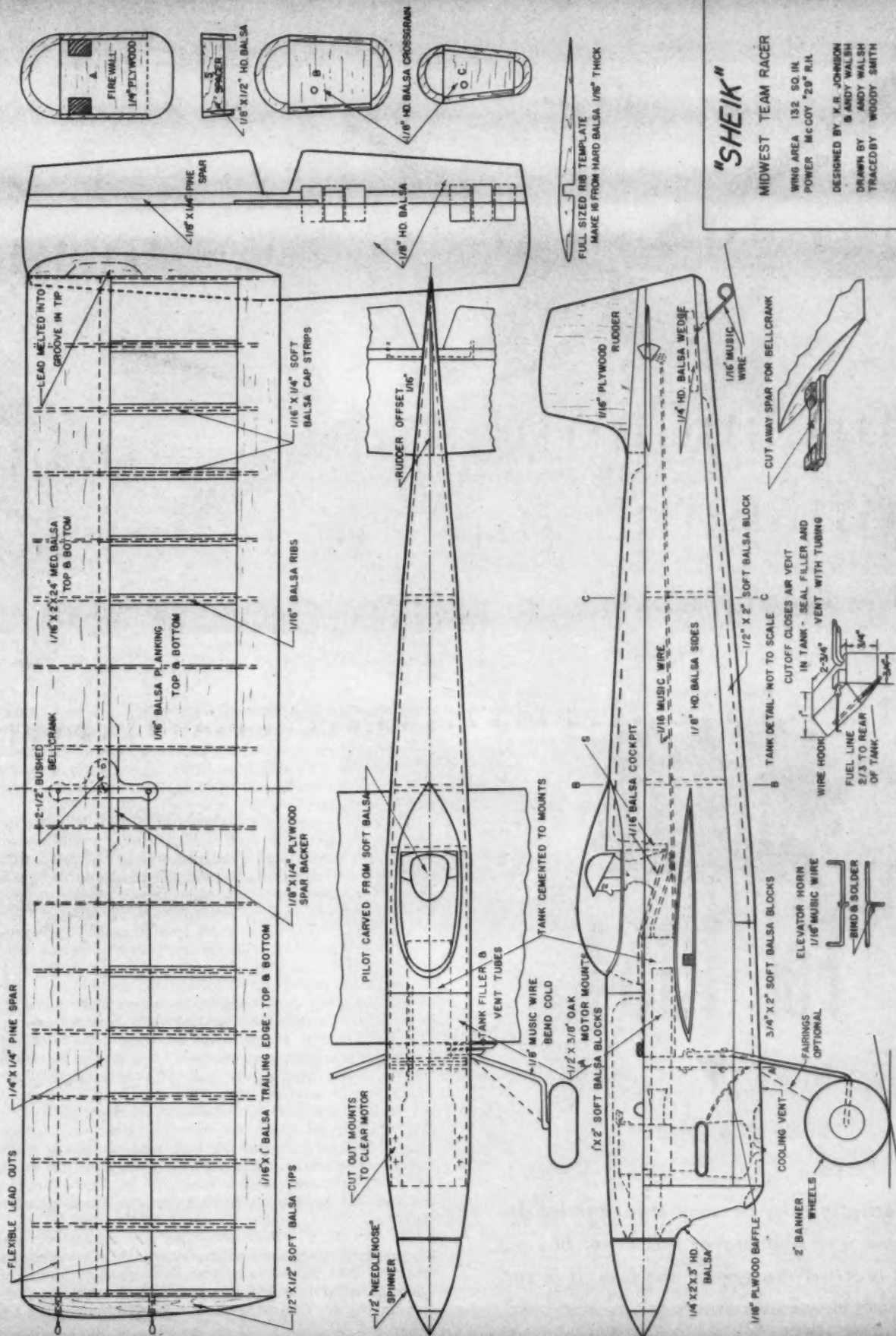
POWER MCCOY "20" R/I/L

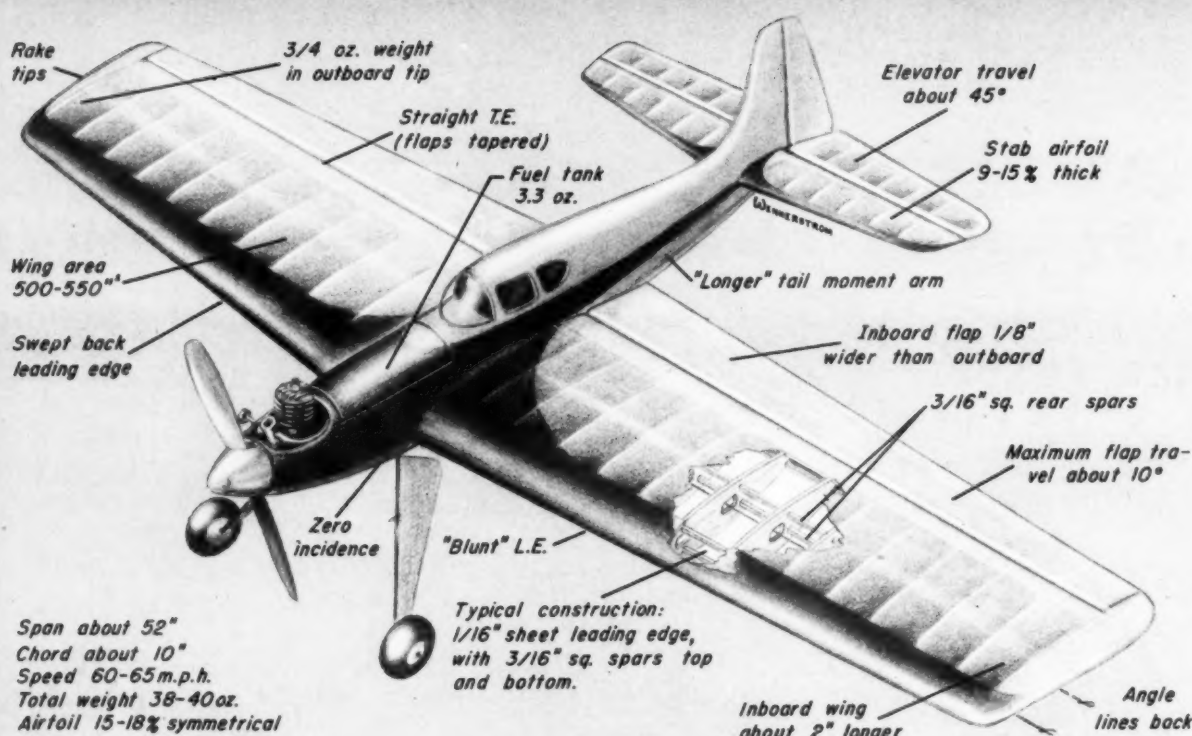
DESIGNED BY K.R. JOHNSON

& ANDY WALSH

DRAWN BY ANDY WALSH

TRACED BY WOODY SMITH





Span about 52"
Chord about 10"
Speed 60-65 m.p.h.
Total weight 38-40 oz.
Airfoil 15-18% symmetrical

STUNT For 1954

By BOB PALMER

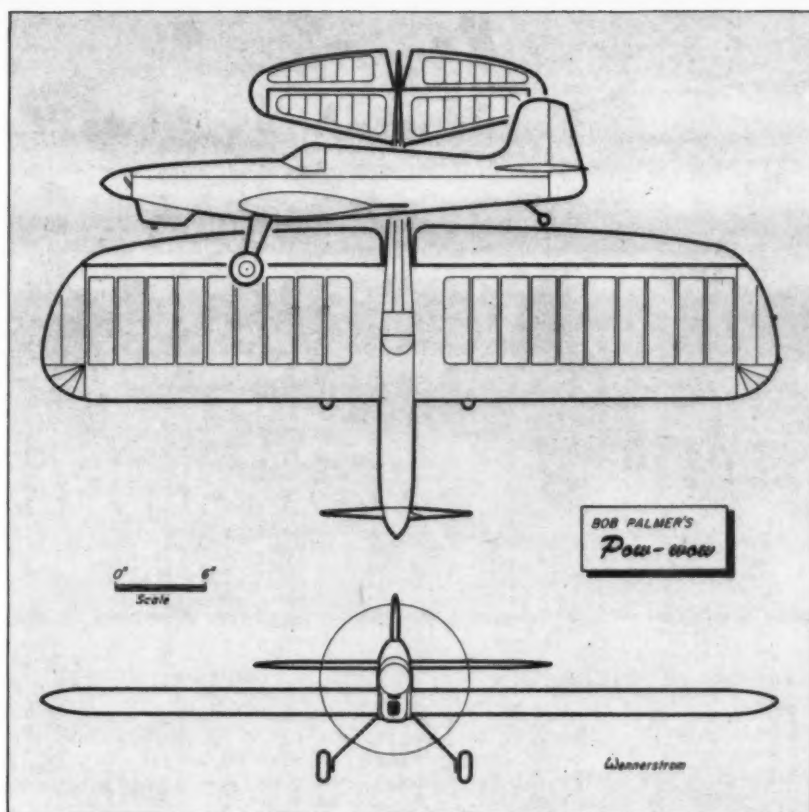
Internationally famous stunt model designer and flier proves this event has not yet reached the end of the line. It is surprising how many things can be improved.

► Are you interested in stunt? If you are, how far do you want to go? Assuming you want to be a top notch stunter, here are answers to some very important questions that will help you over the rough spots. Stunting, and being a regular winner, take time and a lot of flying. Practice will have to be your middle name.

The first thing you should do before you start is study the rules and recognize the various stunts that you will have to perform. The next item is the model itself. The first step is to learn the fundamentals of stunt and learn to fly upside down. This should be done with simple models at first, advancing as you learn, to better kits. Nearly all of the kits on the market made for stunt are tested designs, but they are prefabricated and do not always represent high performance without further tinkering. Of course, to get better performance with the model and to "doll it up" only require a trip back to the hobby shop, and some know-how as far as making changes is concerned. The following notes will help you.

Now hear this! I would like to define power loading. Remember that rules have changed, loops have to be tighter and the model must square well. This means light power loading, which requires large area model and cutting speed. No, speed is not important to stunt. Centrifugal force is the evil of U-Control flying, and more speed in a stunt means more centrifugal force, and this force tends to open up loops, eights, and square horizontal eights. The weight of the model increases in the maneuvers. If the model is pulled too tightly and the load is built up too fast, the model will stall and falter.

I would like to tell you how this new change in power loading came about, and I believe I can say that I was responsible. A friend wanted to learn to fly a model U-Control, so I recommended a Go-Devil Jr. of 38 in. span, and an Ohlsson .23 engine. This plane flew very well and was far too



fast, I would say, to learn on. So I told my friend to weight it with lead. He put four bars of lead on the center of gravity. The model still flew fast and quite amazed everyone who knew what was going on.

After this, I told him to build a Go-Devil, Sr., of 600 sq. in., for his .23 and to be sure to balance it with lead. He built one and installed the engine. Here we got some laughs. Such a big plane with such a tiny engine! We got a lot of bets it wouldn't even get off the ground, and if it did, it would have to be hauled off. Thinking now that we would at least teach this fellow to fly, we went down to the field. I was first to fly the model and it came off the ground in a 15-ft. run. I took it up and it handled beautifully. Taking it a little easy the first time up, I came in for the glide. We went up again, this time doing horizontal eights, loops, and outside loops. It really turned tightly, still keeping up its speed. It was uncanny to watch, and unbelievable to fly. After this, we couldn't wait to go to other flying fields where whining Orwick 64's and Cyclones were flying. The looks on their faces made us laugh when they saw our power plant. So it wasn't long before I built a Go-Devil for a .23 engine and attended some contests, especially one to the North of us, where they

hadn't heard a word of our experiment. I lined up for my turn to fly and everything seemed ordinary to them until a fellow modeler asked to see my power plant and found the wrapping I had on my engine was bigger than he thought it should be. He really thought me stupid when I got to the engine. When my turn came the contestants just stopped and couldn't believe their eyes.

When I went to my first Nationals in '49, I flew a Veco Chief with a .29 engine, and demonstrated a Chief with a McCoy .19. I flew in winds that kept large engines on the ground. Although for good all-around performance, the .19 is not advisable for such a large model, it was included only to prove that so much power in a stunt model is not necessary.

AMA rules have recently changed. Loops and eights have to be done under 45°. This means the angle of the lines must not exceed 45°; hence, the model must turn more tightly than before. Here is where the plane's weight and its speed come in. A model weighing 38 oz. will weigh as much as 76 oz. in a 20 ft. loop, where the same model going 80 mph would weigh nearly four times that.

Therefore, weight and speed must be kept at a minimum. I have found that the ideal stunt (Continued on page 47)

Illustrated top, opposite page, are design features brought out in text. Above is three-view of latest Palmer stunt job embracing these features. Author, below, gets set to crank up the ship.





Prop Saver, should be the name, for that engine on the pylon means you won't be snapping off props. Low slung design allows short trike gear.

Driftwood



By PAUL J. PALANEK

So all pylons look alike—the heck you say! For everyday sport flying, here's a job that's simple, interesting to build. No loss in flying, either.

Thanks to RC type landing gear, rear wheels near the CG, nose wheel producing slight nose down at rest, ship makes swell take-offs for sport.

► In Driftwood we tried for a different look in pylon configuration. The engine mounted 'way up the pylon means less broken props. The profile design of the fuselage with pylon and integral part results in a very simple arrangement. Build-time is reduced considerably. The fuselage lends itself nicely to concealing the nose wheel. Engine mounting permits a low slung design with a simple tri-cycle gear.

The Clark Y airfoil was used because Driftwood is strictly a sport flier. Correct balance is important. Take notice of the CG position. An angle of 2° positive incidence is built into the pylon with a 1° negative in the engine. With minor field adjustments, the above is necessary.

Total span is 42 in., resulting in 294 sq. in. of wing area. With careful trimming a Cub .074 can be substituted for the .049 shown. However, the .049 should be used since the model is intended for sport flying only. (*Continued page 51*)





When winter stops outdoor flying, contests for beginners can be held indoors in armory, gym, or high ceilinged hall. Some of 150 contestants at typical Boston affair display types of planes.

CERTIFICATE OF ACHIEVEMENT

A Boston Model Record

This is to certify that _____ has established
a new Boston record for model aircraft on _____
in the _____ class. Model Category _____
_____, with a record flight of _____.

That the above information is on file with the Secretary of the Model
Records, and is officially recognized by all Modellers participating.

Signed _____

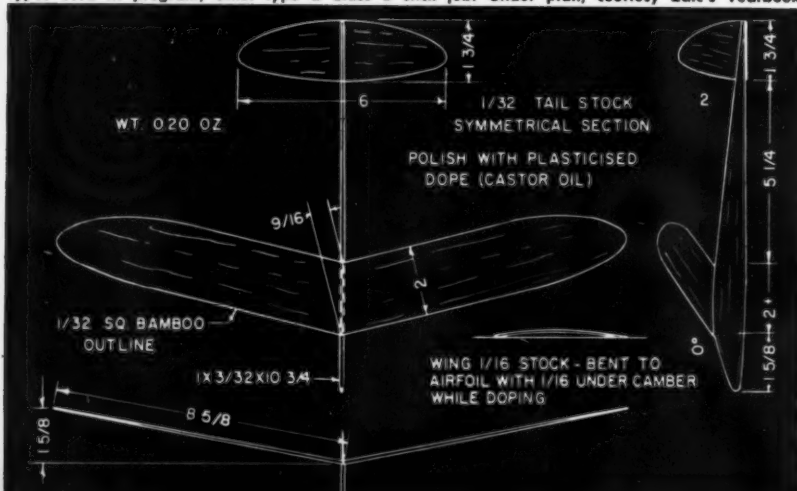
SECRETARY

Date _____

AUTHORIZED SIGNATURE

Because it is usually not possible to give prizes—and the meets are not called contests, but "flying sessions"—incentive is gained by keeping records and awarding attractive certificates like this one.

Below—Perfect for low ceiling work, time tested, easy to adjust, is this glider, one of two basic types used in program; other type a Class B stick job. Glider plan, courtesy Zaic's Yearbook.



The BOSTON Program

Here's a blueprinted plan for action, detailed, all the answers for your town to apply.

By ED DOLBY

► The Little League baseball program is an outstanding example of what concerted effort can do for a sport. Can such a program be applied to model aeronautics? The answer is yes, if other cities and towns would climb on the Boston bandwagon, and apply on a national scale the popular and effective program now in its second successful season in the Hub City.

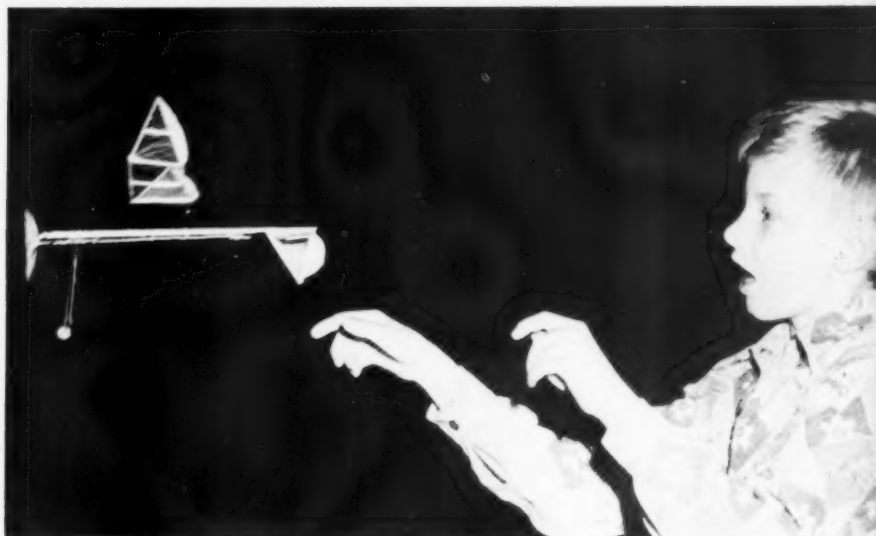
That there aren't enough modelers coming up has concerned everyone interested in the welfare of the hobby. There are many individuals and clubs that would like to start some kind of basic modeling program. But to begin such a program, we have to get down to fundamentals.

The best time to start is when the youngsters have very few other interests. Summer is out. This season has baseball, camp, and dozens of other activities. Pick a time with no competition. Late October, early November is that time. Also, remember that the program will need the help of our modeling friends, who will have more time in the late fall than during the busy contest season.

Now that we have established the time, we think automatically of indoor activities (in cold weather states, anyway). The first problem is a place to fly. A large hall or armory, some place with a 40-50 ft. ceiling, is what you want. High school and college gyms are ideal. A sponsor is desirable, preferably one with financial backing. Money will be needed for setting up the program on a solid foundation. Likely prospects are the service clubs, such as Exchange, Kiwanis, Rotary, and Lions. In many areas we have hobby trade associations,



Small, flying scale jobs a perennial favorite indoors. Donald Hale checks his Nieuport 17.



Eleven-year-old Donald Waischen looks surprised as his Class A ROG takes to the air. Older builders are tempted into helping such programs by giving them opportunity to make record trials.

which include hobby dealers and wholesalers, banded together into an organization. Such a group sponsors our Boston affairs. Other organizations that may look favorably on your project are the Parent-Teachers groups and local newspapers.

By having a sponsor you can attain objects that would not be within the reach of the individual or unbacked model club. Any sponsoring group will delegate someone to assist you. Help is needed to obtain the flying site. Some sites are available free of charge to responsible parties, and there is where your sponsor comes in. Other places have hourly rates that they *must* charge. Don't let this scare you: they have to make these charges or everyone would

be using the place. It is important to explain the program fully to these people and stress the type of model to be flown (light fragile, slow flying, rubber powered models). Rental charges can get as high as \$10 per hour, but don't give up. The average time for one of these indoor meets is about three and a half hours. Rent your hall for an hour and a half. This will usually satisfy the renter, and it is of course customary to allow renters to come to the hall and prepare for their using it, and after the rental period, to stay and collect their equipment, etc. In this way you can get your day's flying done for a minimum of expense.

It is important that the halls be left clean. Carelessness here is the surest way

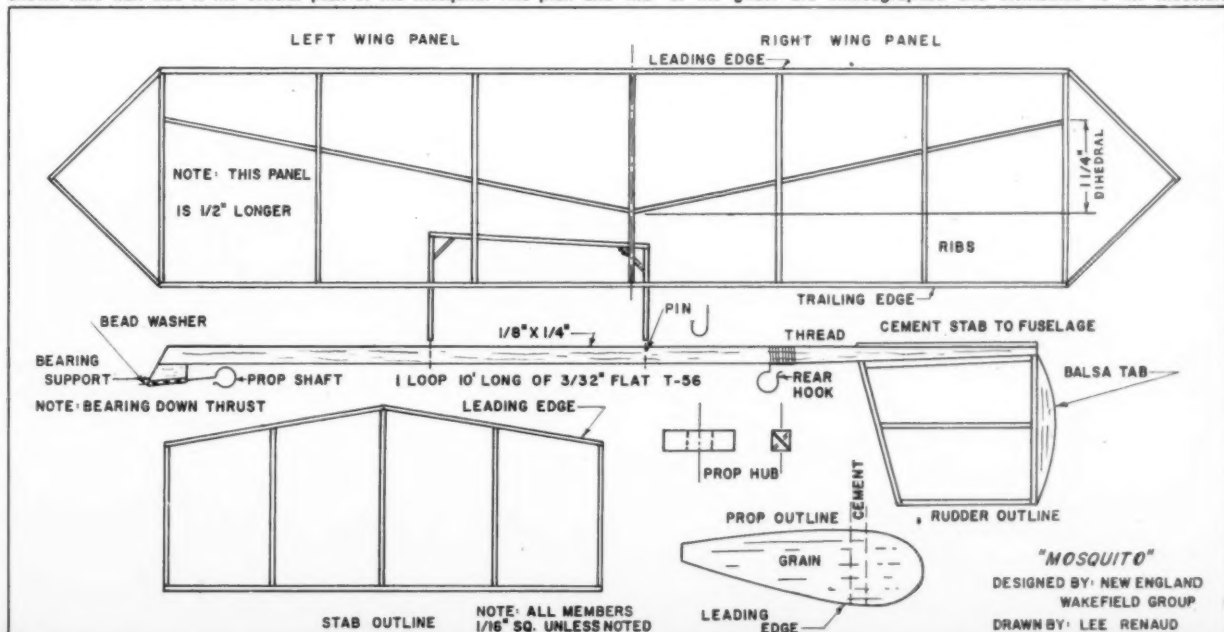
to lose the flying site. If you are lucky enough to have an armory, make a point of talking to the company commanders as they could arrange for you to use the place free of charge by having the company or battalion co-sponsor the activity. Again, the sponsor can lend a helping hand.

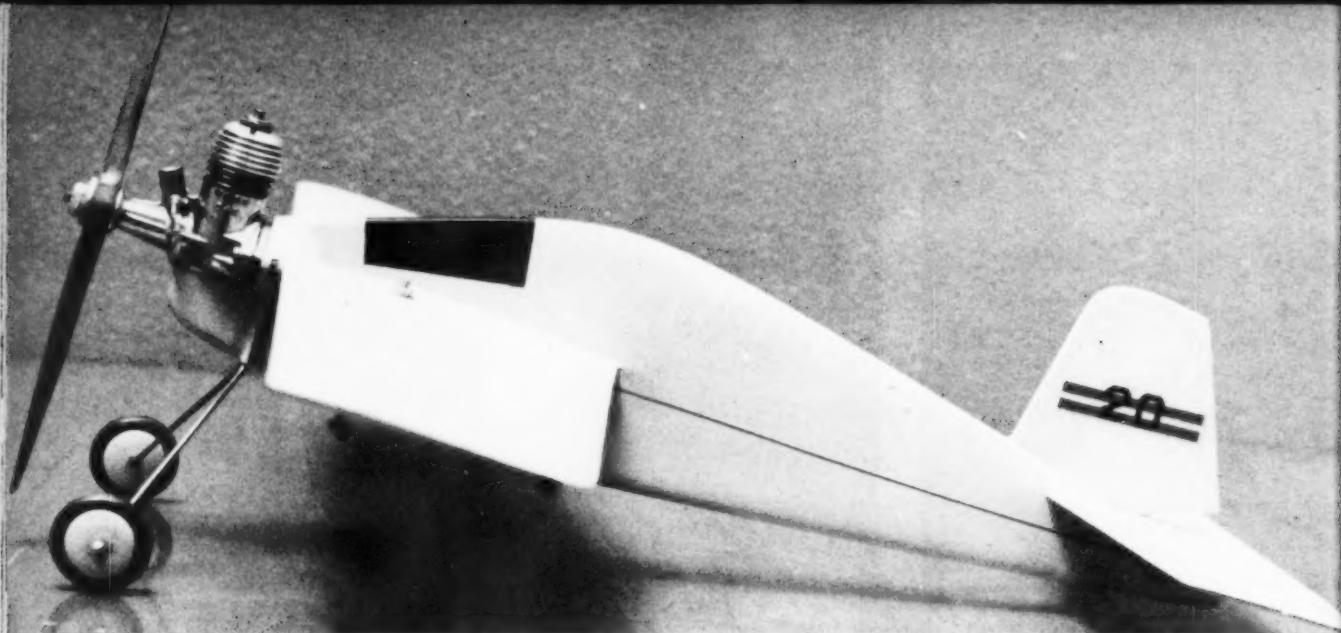
Now, don't call these affairs contests. Do call them flying sessions. This puts the thing on an informal basis. The following rules and set-up were found best from experience:

Age Groups: Junior—through 13 years old; Senior—14 through 17; Open—18 and over.

Model Categories: In square inch wing area, Class A to 30; B, 30-100; C, 100-150; D, 150-300. (Continued Page 46)

Shown here half size is the official plan of the Mosquito. This plan and that of the glider are mimeographed and distributed to the modelers.





Anyone can make it, and everybody can have fun with it. Can be built in a couple of hours; takes but a few pieces of sheet balsa and any .049.

TWISTER

By LLOYD V. HUNT

► Dust off that .049, find a razor blade and pick up a few pieces of sheet balsa. Next study the full size plan. After this has been digested, let's start building the Twister. Designed to give you hours of flying, the model will almost fall together with little effort.

Cut the fuselage outline from 3/16 sheet as called for on the drawing. Slot for the wing, then cut out the horizontal stabilizer position as shown. Next bend the landing gear using the pattern for a guide on the plan. You will notice that the gears are then bent forward approximately as shown. Complete by sliding down into position. Cut the firewall from 1/8 plywood and drill through for the mounting bolts. Secure the nuts to the back of the firewall to suit. After the firewall has been cemented into place, check to be sure the landing gear is lined up and cemented at all points of contact with the fuselage.

The hard balsa pods may be carved as shown, though for our model, we got a little fancy and did some streamlining. Any way will do nicely. The plan view of the pods is shown

Gray with black trim is the color scheme, though silver would also be good for a change. Flies on 15 to 20 foot lines, and is sensitive to control.

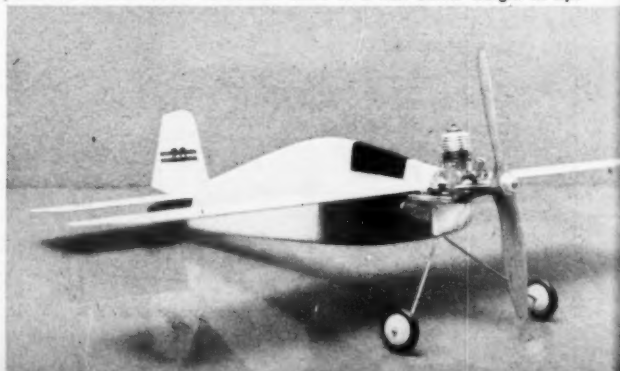


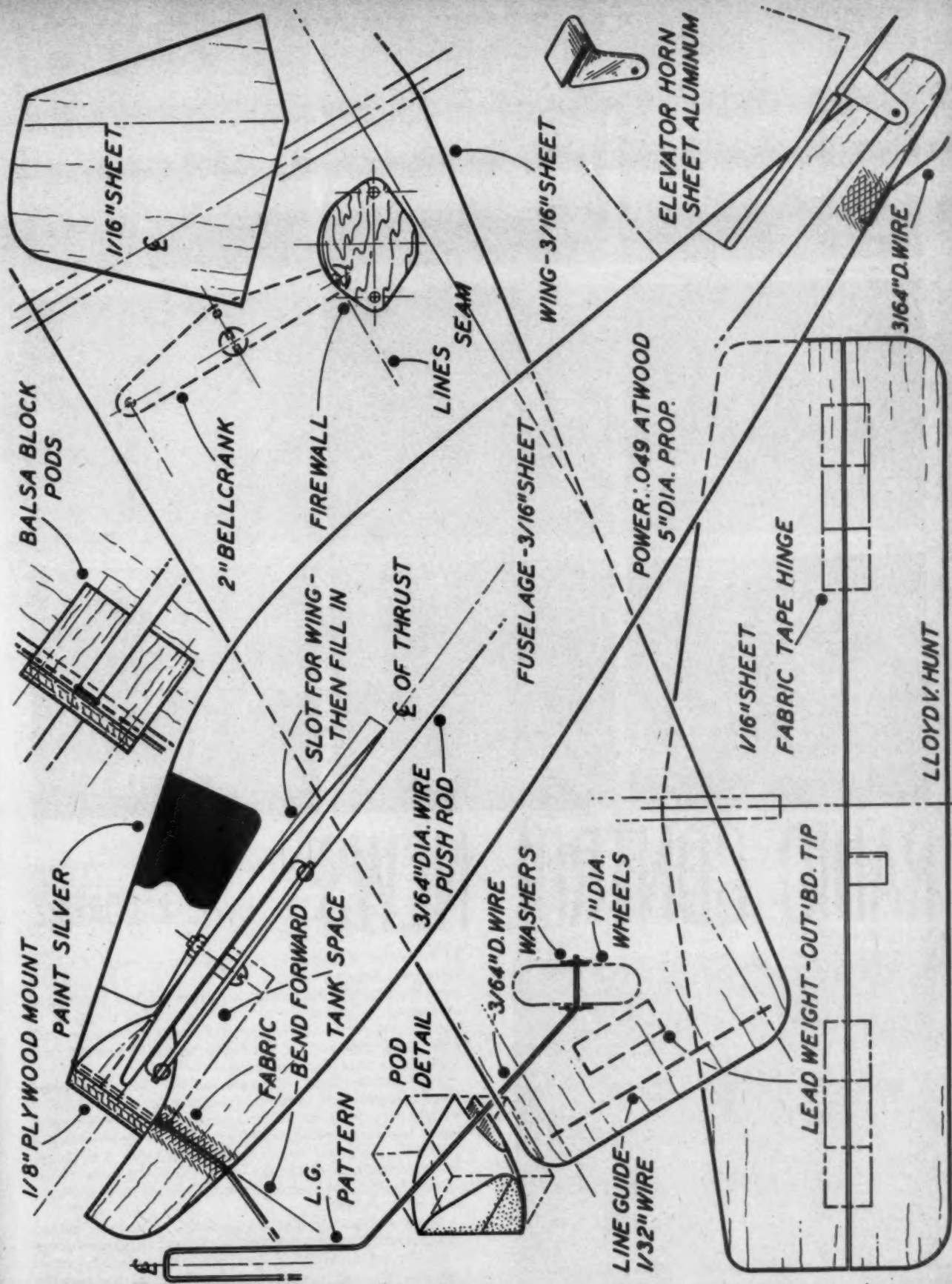
square. Groove the inside of the pods so that they will fit over the landing gear. Don't make the grooves too large as they aid in holding the gear in place. Spot cement into place the little triangular piece of wood that was removed when the stabilizer location was cut. Finish the fuselage by sanding the edges round—this will enhance the appearance of the model and also give the fuselage more strength. Finish by bending the tail skid. Then cement and fabric cover skid along with the landing gear.

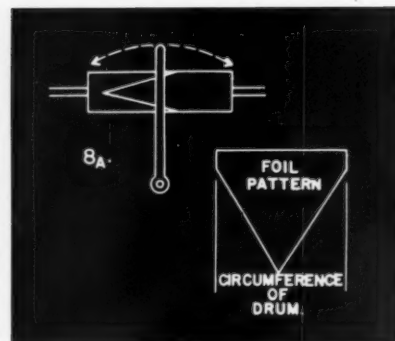
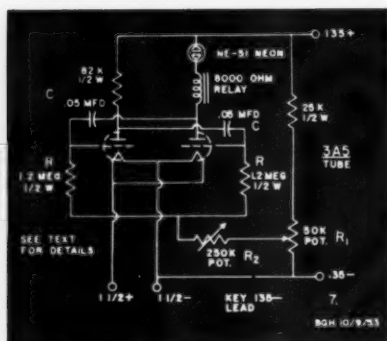
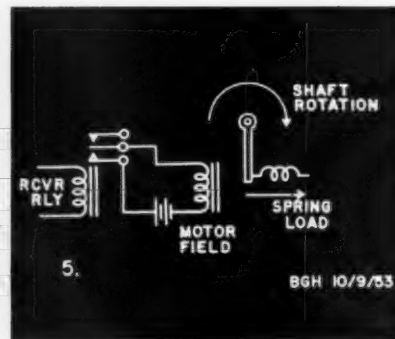
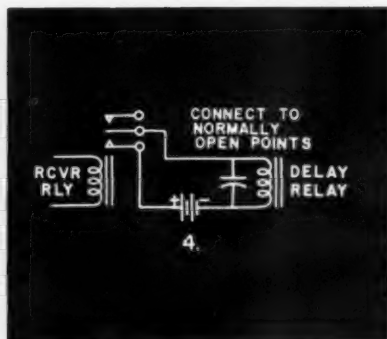
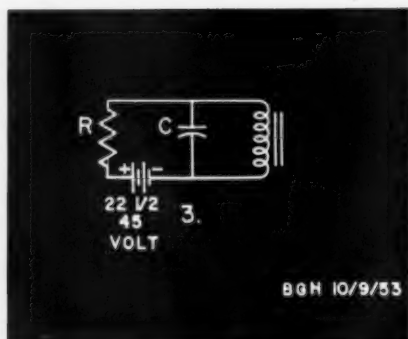
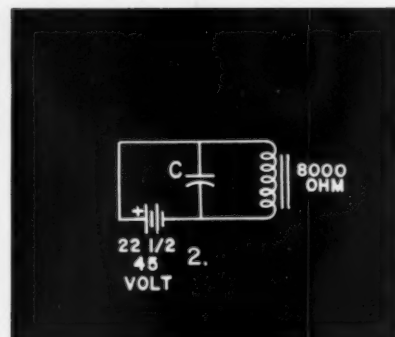
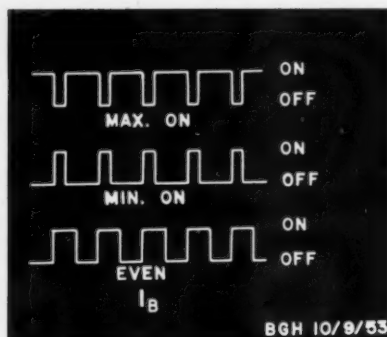
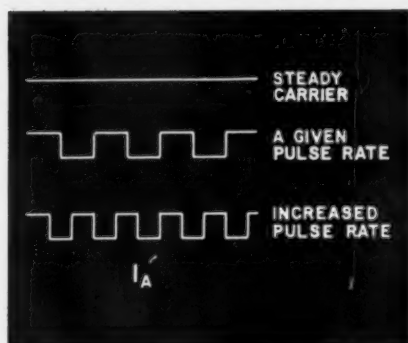
The wing is cut to outline as shown. If you are using 3 in. sheet balsa, notice that the trailing edge will require adding a strip to the 3 in. sheet to complete the wing. Shape the airfoil section into the wing, then cement into place on the fuselage. Be sure that the wing is lined up and true with the fuselage. The horizontal and vertical stabilizers are cut next to shape and sanded to sections as shown. Cement the horizontal stabilizer into position and fit the wood triangular piece back onto the fuselage and over the stabilizer. Finish by adding the vertical

(Continued on page 53)

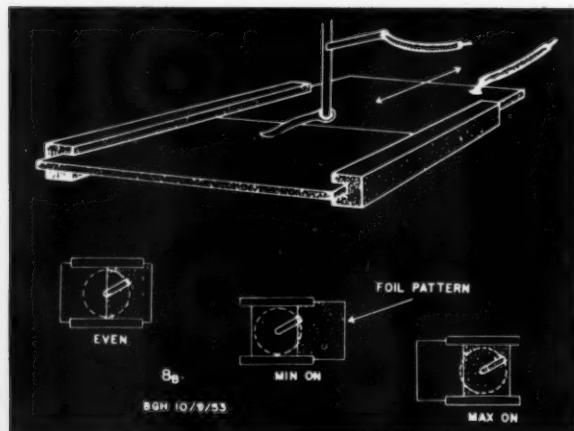
Stock wedge tank is located beneath the outboard wing. Don't forget to put offset in the rudder to outside circle or a half ounce weight in tip.







RADIO CONTROL NEWS... by E. J. LORENZ



► Now that more people are beginning to design auxiliary equipment for their own use, we'd like to give a bit of information on basic pulse techniques. There are two basic types of pulsing: pulse rate, where the frequency of the pulse is variable and the on-off time generally remains the same; and pulse length, where the frequency generally remains the same but the on-off time is varied.

Fig. 1-A illustrates pulse rate and Fig. 1-B shows pulse length transmission. The steady carrier is indicated by a straight line. Pulse rate control generally is used to control delay relays and pulse length generally is used to vary a voltage into a transformer or actuator winding. The longer the time "on," the higher the voltage, and vice versa. When pulses are even, the controlled winding should be in a neutral or normal condition.

When a capacitor and a pulsed DC voltage are placed across a relay winding, the capacitor stores part of the voltage when the pulse is removed, thus continuing to feed the winding until the next pulse appears. The length of time between



Bob Forbes and his Bootstraps, launched by lefty Don Johnson. Lorenz receiver, Aerotrol escapement. This excellent action shot was taken by Buck Joseph.

For the beginner and sport flier who operates commercial equipment, there's news, and questions and answers. For the expert and the experimenter who would try his own, there's a meaty rundown on pulse control. Club news, RC contests, new products.

pulses, to hold the relay energized, depends on the size of the capacitor and the applied voltage, as shown in Fig. 2. There are other factors which also are involved and in order to simplify design, the following pulse rates will be needed when using a Sigma 4F 8000 ohm relay. These are minimum pulse rates.

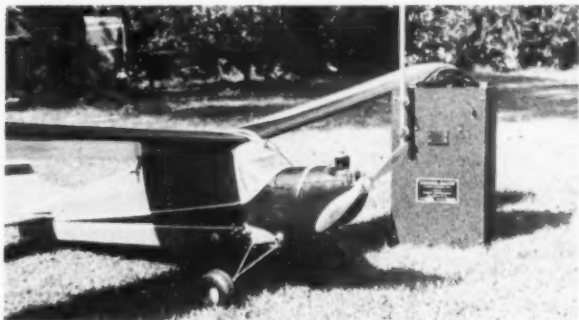
| Capacity | 22½ v | 45 v |
|----------|-------|------|
| 10 mfd | 160 | 320 |
| 20 mfd | 80 | 160 |
| 30 mfd | 40 | 80 |

When it is desired to keep a relay in a pulsed circuit open, until the signal is held on, Fig. 3 should be used. The resistor and capacitor then form a timed circuit for the pulses. The voltage applied across the capacitor is dissipated by the resistor until the pulse is held on, at which time the relay is actuated. In either case, as shown in Figs. 2 and 3, the relays will follow the pulsing if the rate falls below the frequency needed to keep the capacitor charged. Values for holding off the relay are as follows:

| Capacitor | Resistor | Pulses per Minute |
|-----------|-------------|-------------------|
| 10 mfd | 16,000 ohms | 240 |
| 10 mfd | 8,000 ohms | 960 |
| 30 mfd | 16,000 ohms | 144 |
| 30 mfd | 8,000 ohms | 288 |



Five-channel Channel Master installed in Live Wire Trainer with an .08 Mills Diesel for power. This machine proved capable of performing loops.



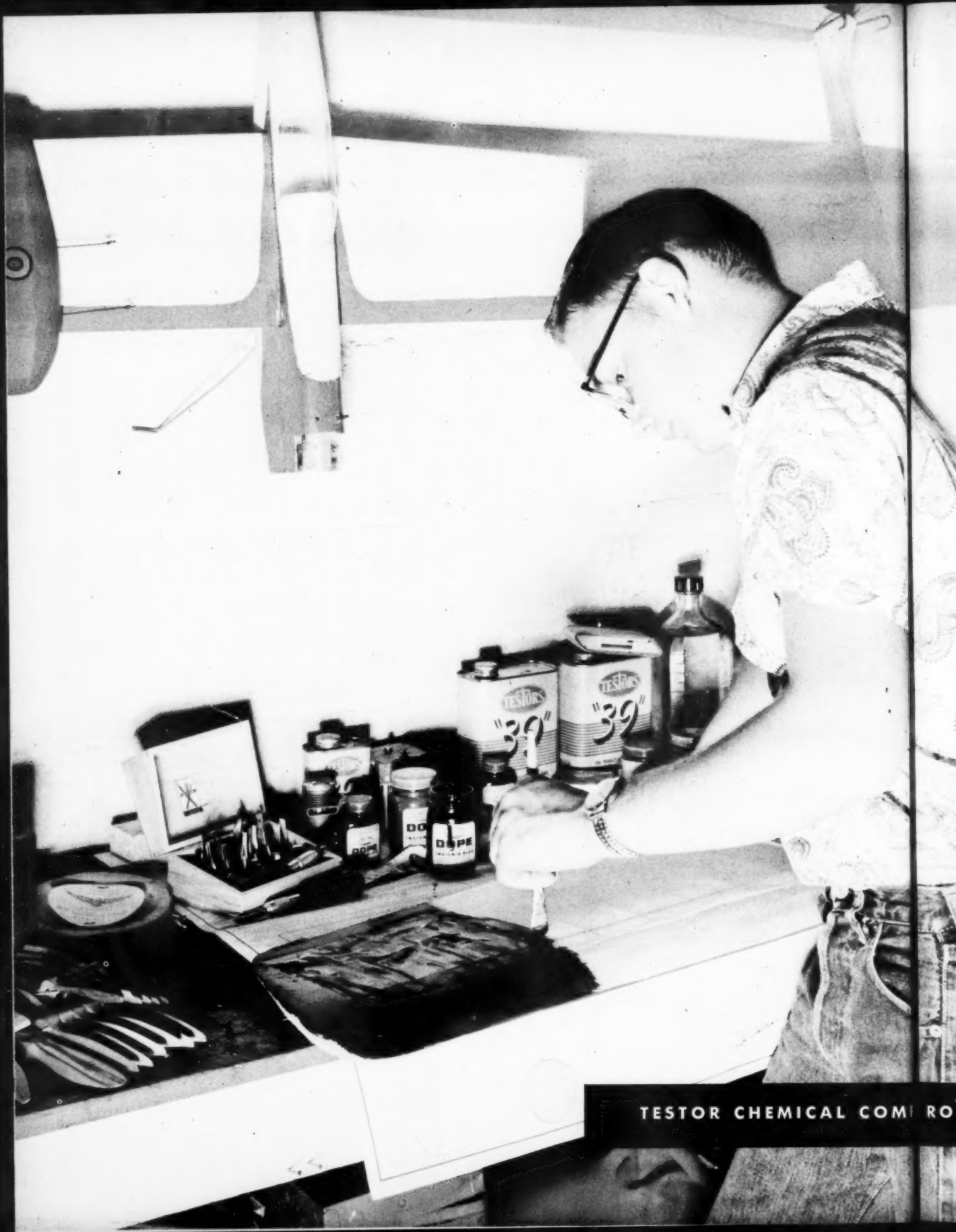
Short Circuit, Bob Palmer design for Veco, .09 to .19. Span 54 in., equipment, Control Master. Walker pressure tank, Cub .14 shown, shock gear.



Howard Banner with his well known ship design at the last Nationals. Has multi-control by escapements and a band-pass receiver. By John Curry.

The above values are for use with a Sigma 4-F relay with 45 v applied. In this circuit a 25,000 ohm rheostat will provide the variation needed, experimentally, since the pulse rate is governed more by the resistor than by the capacitor. To meet inductive "kickbacks" through the relay winding, it is suggested that 150 v capacitors be used when the voltage applied is 45 volts, and be sure the polarity is correct with respect to the battery. Delay relays are connected into the points of the regular receiver relay, with either 22 1/2 v or 45 v supply, as shown in Fig. 4.

For pulse length control operation, the regular receiver relay is generally used by itself, with the armature contact remaining longer on one contact or the other depending on the length of the pulse. Fig. 5 shows how a small DC motor can be operated to give control in one direction or the other, depending on the length of the pulse. The control arm or shaft of the drive should be spring loaded so that when pulses are equal in length, the control is in neutral. As the length of the pulse increases, the voltage fed to the motor rises to a higher average, thus causing it to run faster and overcome the spring tension. In order to key the transmitter for pulse rate control it is only necessary to vary the frequency of the pulses. This can be done either mechanically or electronically. Mechanically it is necessary only to vary the speed of the rotor drive as shown in Fig. 6. Contacts (Continued Page 40)



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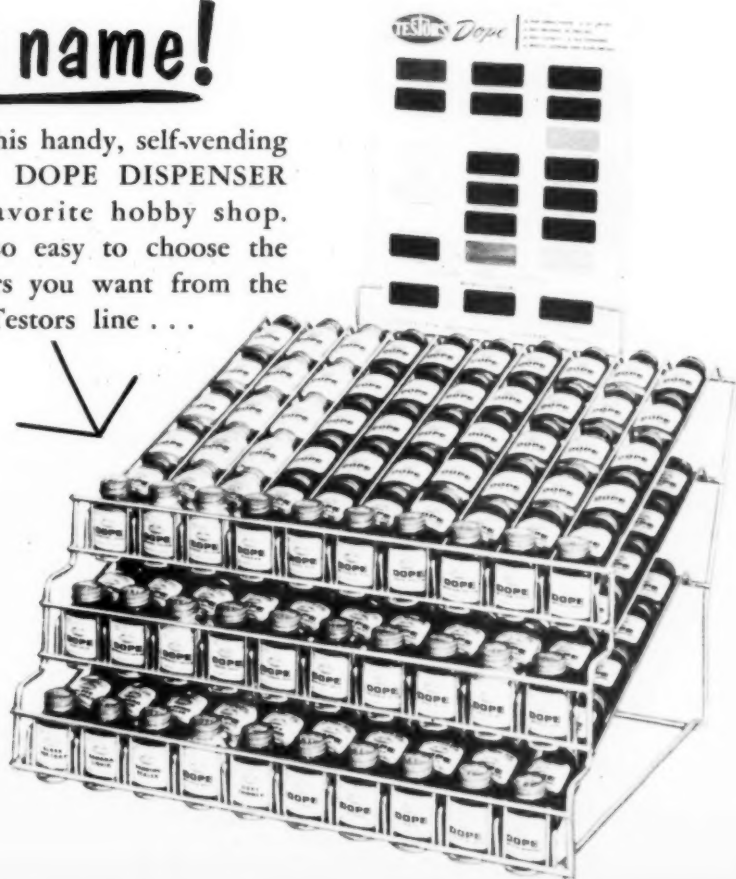
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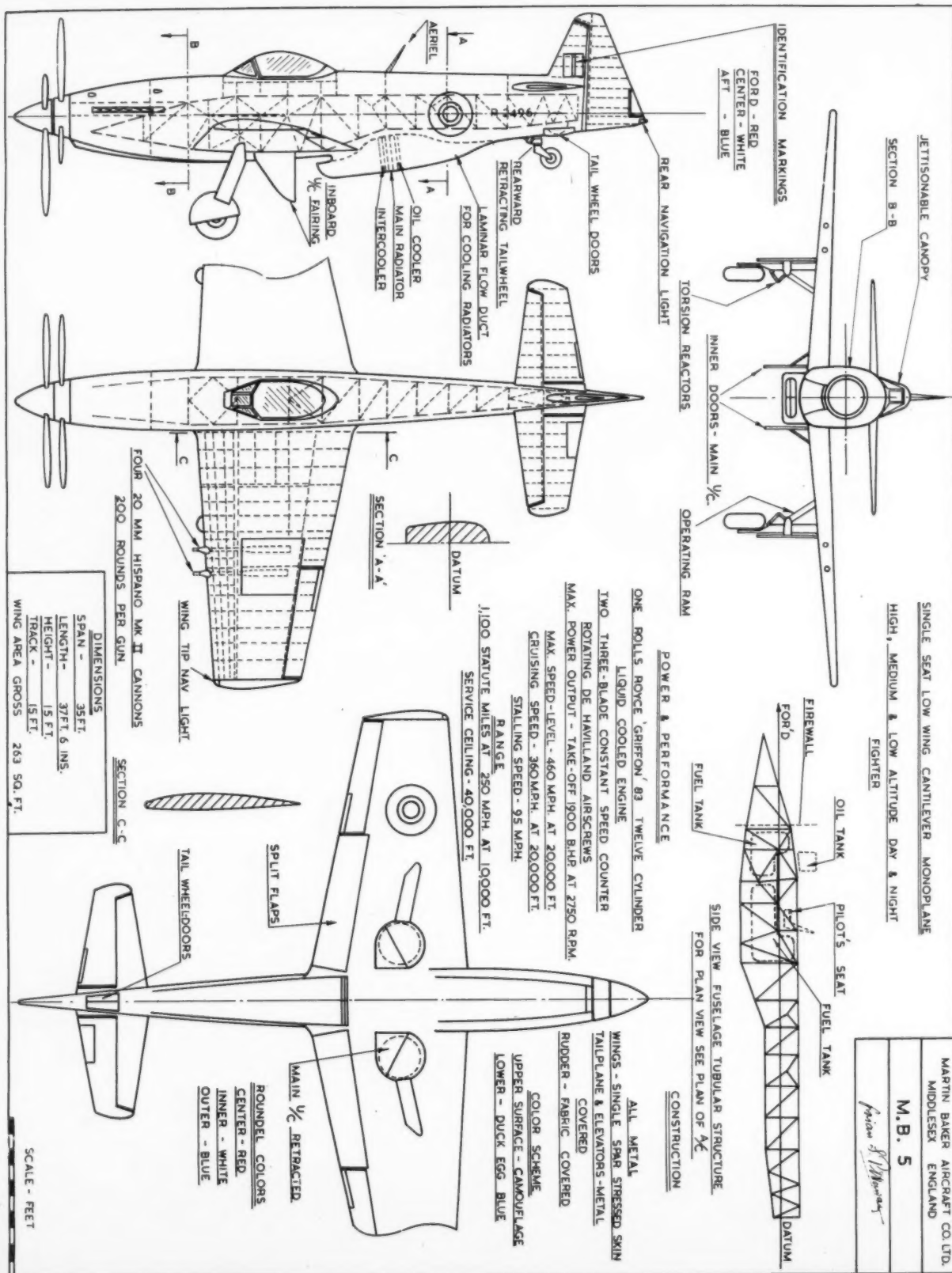
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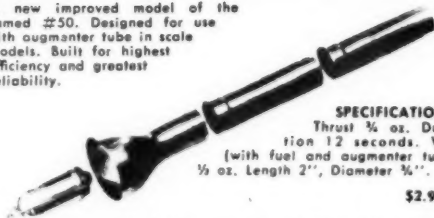
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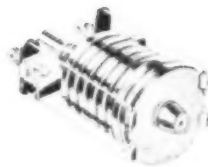
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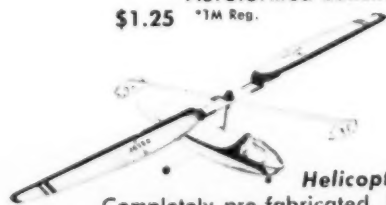


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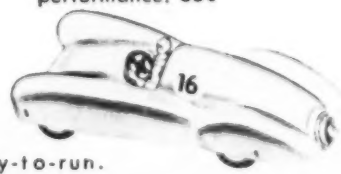


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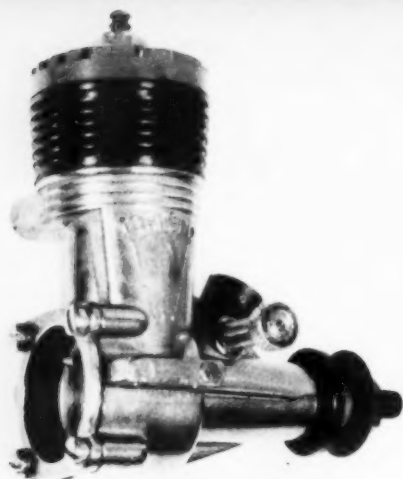
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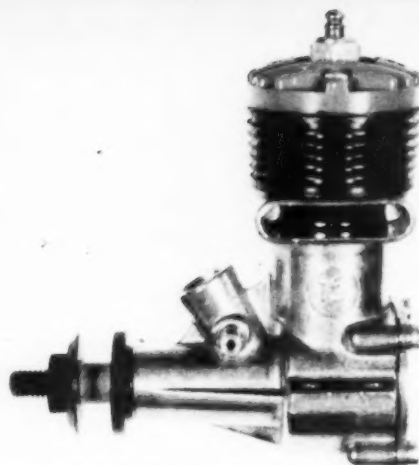
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Closest fit of any K & B since ignition days necessitates a 45-minute break-in period.

ENGINE REVIEW

K & B .15 TORPEDO



Porting of this "small" engine is large enough for a .19. Balanced, smooth runs.

THE NEW .15 is an almost exact scale replica of the larger K & B engines. By figuring the .15 displacement as a percentage of the displacement of the larger .19, and working out the shaft and bearing cross-sectional areas in similar manner, it emerges that the .15 has almost identical proportions, and therefore, theoretically, has all the ruggedness and durability of bigger K & B's.

The .15 has already established, by a handsome margin, a new FAI world's speed record in its class, and in so doing has added more fuel to the design controversy over opposed porting versus circumferential porting. It also was the stand-out engine of the International Power Event at Cranfield, England, and placed first in Dave Kneeland's model.

The advent of the Arden engines sparked a world-wide swing by most designers to the 360° porting system for small engines, and the ensuing years have seen considerable ingenuity devoted to its development to the point where it is almost universal in the Half-A field. The performance of the Space Bug which features the old double opposed exhaust, with interposed bypass, sowed the seeds of doubt, and the record breaking K & B .19 with conventional opposed porting showed that, in the case of Class A motors, the old system was far from obsolete. However, the unquestionable success of the K & B .15 puts the lid on it, for the .15 is

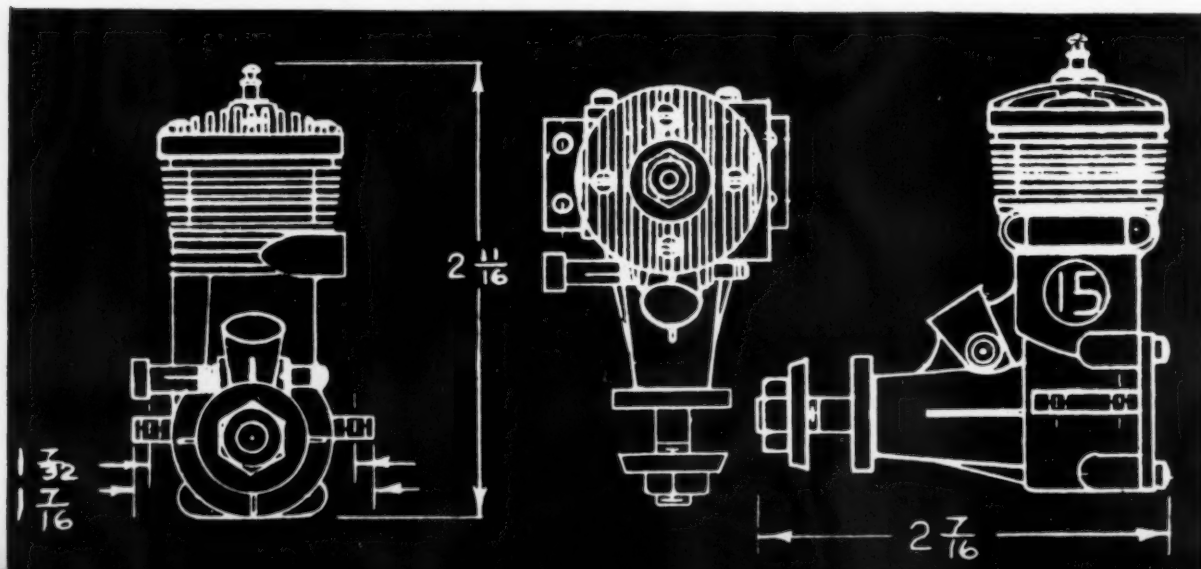
definitely a small engine, and it therefore seems that circumferential porting cannot any longer be called superior.

For those who like the exhaust squirted in a definite direction, instead of all around the engine, this is welcome news, and opposed port construction is not generally prone to cylinder distortion from thread loading, but it is inherently more expensive to manufacture. Crankcase castings are more elaborate and baffled pistons more difficult to produce than the conical type. Extra drilling and tapping operations are necessary with bolted assemblies and gasket tooling more delicate and costly. It is therefore unlikely that there will be any pronounced swing to opposed porting, but all this vindicates designers who have patiently concentrated on the old system through all the doubts of the past few years.

Constructionally, the K & B .15 is an entirely new production in that none of its components are common to the larger Torpedoes. However, the time-tested general K & B layout is again employed with only minor changes in secondary details. The polished aluminum crankcase pressure die-casting incorporates a massive main bearing housing with reinforcing webs, crankshaft rotary valve intake with a pressed-in brass spraybar in place of the usual detachable type, and the lower cylinder housing including bypass passage and exhaust stack.

(Continued on page 38)

By E. C. MARTIN



Wakefield Winner

(Continued from page 12)

at best. We then abandoned the gears and put single skein White tensioned motors in these ships. Test flights showed an improvement of about 30 seconds in each case. I was quite lucky to qualify for the semi-finals with my ship getting only one good flight out of three because of bad knotting conditions. A month later Manny Andrade and myself won the semi-finals with long jobs to qualify for the finals in Finland. It was disappointing to find that the Finnish dead air that we had heard so much about in the 1950 contest was non-existent in 1951 and our long ships trimmed for maximum glides with very large circles were certainly not windy weather combinations. Almost immediately upon our return home the problem of attaining a five minute all-weather airplane was tackled. My idea was to find some way of circling a long model tightly without sacrificing the glide. I was not destined to do much experimenting along these lines for I had become engaged to the girl who is now my wife. During this period, model building for me was practically non-existent. However, this was not so for Joe Bilgri who was spending a great deal of time on a brand new approach to the geared design. In the fall of 1951 he appeared at our test flying site with what we considered at the time a super light geared model with 6.75 oz. of Perelli rubber. My first impression of the ship was that it lacked the necessary glide for five minutes even though the climb was terrific. Joe continued work on the ship and later reduced the power to 6 oz. of rubber, bringing the total weight down to 9.25 oz. The ship began to show great promise as it neared perfect trim. I must admit that it took a lot of convincing before I realized that this design was the answer to our all-weather five minute airplane.

In 1952 Joe had little trouble getting through our regionals and semi-finals to win his place on the Wakefield team and I believe if it were not for unusually bad luck in Sweden he could have been an easy winner. While this was all going on I was busy getting married, buying a house, and attending to the thousand and one details that go along with these. The first of the year in 1953 I again started work on a Wakefield. It was apparent to me that in order to compete in this year's event I must have a ship at least as good, if not better than, Joe's model. So my problem was to improve on his design, if possible.

First of all, there was the weight problem. Getting a ship at 3.25 oz. with gears and still strong enough for most reasonable weather was the first headache. A few changes in construction came to me immediately; these were slightly more beefy wing and tail. I accomplished this in two ways. First, the aspect ratio was reduced slightly in both cases and the leading edge design and spar locations were improved. The biggest apparent design change was the use of the box fuselage in preference to the diamond. I may get arguments here, but I believe it to be a more streamlined arrangement and stronger for landings as two longerons meet the ground instead of one. Other very small and insignificant alterations were made here and there. Generally speaking, I tried to clean the design up a little. The ship was covered with red Japanese tissue and given four coats of non-plasticized dope, thinned down of course. The weight came out as I had hoped: 3.25 oz. without rubber. There is no use going into the construction as it will do no good under next year's rules. However, it may help you new builders if I give you some of the changes I will probably make on next year's design.

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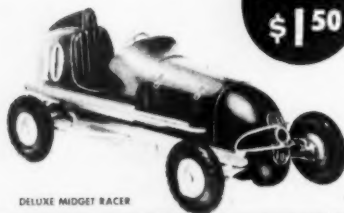
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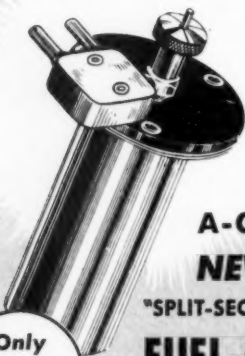
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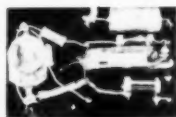
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cabin outlines will not be changed. The fuselage will be lengthened to 38 in. between hooks to accommodate 14 strands of Perelli or Dunlap or 20 strands of T56 34 in. long. I think I shall leave the blades of the propeller the same weight and thickness and use a spinner arrangement to add weight and streamlining to the prop. Making the blades too rigid might detract from the flaring qualities of the prop which help control the initial burst. In bringing the fuselage up to weight, the sides may be sheeted or the same type of construction can be made from very hard balsa. In beefing up the wing and stab, I will pay particular attention not to disturb spar locations and to add weight and strength to make the V-constructed leading edge solid and the spars deeper. Everything will be from hard wood.

This year's ship had a total weight of 9.2 oz. because the 1954 design will of course be at the minimum weight. I think it advisable to use an airfoil thickness between 9 and 10 per cent of the chord in order to retain a degree of wind penetration and to improve streamlining.

I know that all experienced builders have their own pet adjustments but I have learned through bitter experience that there is only one practical way to fly this combination. That is, with a right climb and a left tight circling glide. I have tried right-right with no success at all because of the high power which exaggerates the quick change in torque in all rubber jobs. My procedure goes like this: the new ship is hand glided and rudder adjustments made until an apparent left circle is attained. Then using very few winds, right thrust is added until a near spin to the right is apparent. A very slight bit of right wing panel wash-in is the only other adjustment used. You will notice that as winds are increased on test flights, instead of a straightening out tendency in the power flight producing the danger of loops and rolls to the left, the ship turns sharply to the right until the speed of the model brings the left rudder into effect, allowing the ship to roll smoothly in a high angle of climb. As the power diminishes you will notice that the right circle gets tighter. This is because the thrust has more effect than the rudder at low speeds. Another advantage to this adjustment is that as the ship approaches a power stall, the counteracting left rudder loses its effect first and the right thrust pulls the model in a sharp turn and out of the nose up angle. You have probably noticed the center of gravity at the trailing edge of the wing. This, in conjunction with the 36 per cent elevator, keeps the glide flat even in a tight circle.

CONSTRUCTION OF THE AMBASSADOR

Assemble both sides one atop the other. Reverse the order of the cross braces from the first side. The plans don't show this. When ready to put in the top and bottom, use three or four sets of spacers tacked in with cement so that the proper top view outline is obtained, and work your cross braces from each end toward the center of the fuselage.

The laminated outlines of the cabin are easy to make and strong. Cut the proper size strips from 1/32 in. sheet, soak them in very hot water for about 10 minutes, then bend around form holding them to it with pins at the ends. Place in a 200° oven or hold over heat until dry. Tack the first strip to the form and cement the strips one atop the other in the proper order.

Aside from the hinge, there is nothing unusual about the nose block or prop construction. You can use your own system for a prop hinge, as weight is no object under the new rules. I made mine with a hand file and a hand drill.

It isn't necessary to build up the landing

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gear strut as illustrated. A solid piece of hard 1/8 in. balsa cut to a streamlined shape might be easier. Make your gear at least as long as shown on the plans. It is imperative for good take-offs at a high angle to the ground.

Wing and tail construction is self-explanatory. Use the same procedure as in the cabin for making the laminated outlines. When cutting out ribs, it is wise to use a good template such as aluminum. I stack the ribs together for a slight sanding and then notch them for the spars. This gives straight spars when the wing and tail are constructed.

Credit should be given where credit is due, so it is only fair that I mention that Joe Bilgri was responsible for the development behind this design. I only did what I thought could improve it.

I would like to add to you new builders who in past years were hesitant to build Wakefields for competition that next year is your chance, for under the new rules the so-called experts will have little or no advantage. So let's see some new faces when the eliminations come around in the Spring of '54.

This article gives me an opportunity to publicly thank those fellows of the Wakefield Committee who have worked so hard with nothing to gain for themselves. I not only thank them for myself but for everyone who is interested in seeing the U.S.A. represented in these international events. In the future let's not leave the burden to just a few. Let all who can pitch in and help where ever they can so that the U.S.A. will have even greater representation throughout the world. Contact the Committee now. Let them know, or ask them, what you can do to help in the effort next year. **END**

The Sheik

(Continued from Page 16)

Cement the motor mounts to the sides using a good strong fuelproof cement (we recommend Master Mender). Attach landing gear to the 1/4 in. plywood firewall either with "J" bolts or by sewing. Be sure to bend the gear to shape first with a vise and hammer: it's 1/8 in. piano wire. Cut away motor mounts so that when engine is installed, the fuselage will be 2 in. wide. (Our McCoy's had exhaust and fins filed away so engine would slide between motor mounts at installation). Cement in firewall and formers, checking to make sure fuselage does not twist when drying. Make the tailskid and sew to plywood base, using plenty of cement, and attach to fuselage. Tack cement top, bottom and front blocks and shape as shown. Remove blocks and hollow, making sure side walls are at least 3/16 in. thick. Measure 5 3/4 in. from front and saw. You now have a removable hatch with access to engine and tank. Install 1 oz. tank. We build our tanks wedge shaped to fit between the motor mounts. A sketch is shown on the plans.

We installed a K&B shut-off. However, you can use your own favorite cut-off. Our hatch was bolted to a bracket fastened on rear of motor. The venturi was twisted to allow needle valve to project just above the motor mount on the left side of the plane.

The tail assembly is of conventional construction, and should present no problems. Attach push rod to bellcrank and bend to fit the control horn. Cement wing and tail assemblies in place. Cement top and bottom blocks in place.

The rudder is of 1/16 in. plywood, slotted into the fuselage with a slight offset to hold plane tight on the lines.

Silk entire plane and finish using your own favorite sealer and fuelproof dope. We happened to use Aero Gloss. Our colors were

(Continued on page 39)

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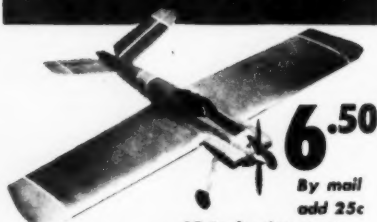


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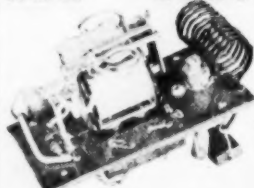
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olive drab and yellow on one, and lime green and black on the other. If stock colors do not suit you, try mixing your own.

Fly the Sheik on 60-ft. lines. When testing, be sure to have the engine wide open to insure a good smooth flight. Here's hoping the Sheik will put you in the winner's circle. During the 1951 and 1952 seasons, we placed first and second in every contest we entered together. No. 73 won the team race at Peoria's AAA meet two years out of three, and last year took all firsts with the exception of one third place. **END**

Engine Review

(Continued from page 32)

Four tapped lugs receive the crankcase rear-cover retaining screws, and heavy beam mounts drilled for four bolts are located at the crank center line.

The bypass passage is very large indeed, both circumferentially and in cross section, and has a smooth polished surface. The exhaust stack embraces 170° of the cylinder wall and is wide enough for an average .19. The inside corners of the stack are curved in order smoothly to redirect gases emerging from the extremities of the exhaust port into the main stream.

Thrust loading on the crankshaft is handled by a projection of the bearing bushing which bears on the ground face of the crank disc. The bearing length between crank disc and air intake is 3/16 in. In keeping with the cylinder ports, the air intake is also of very large throat diameter, and like the K & B .19, which has the port dimensions of an average .29, the .15 features breathing equipment which would hitherto be considered "hot" for a .19.

The spraybar diameter is small and therefore does not disproportionately reduce the effective intake cross-sectional area. The internally threaded knurled aluminum control knob with pressed-in steel needle is split for part of its length and may be squeezed to provide greater friction if desired. In operation, this frictioning device proved satisfactory.

Perhaps the most imposing component of the entire engine, the heat treated steel crankshaft is massively proportioned. A stroke of .535 in. results in a fairly large crank disc which appears to be perfectly balanced statically and dynamically by a crescent type counterweight. The crankpin is 5/32 dia. x 7/32 in. long and well finished; the main shaft, 5/16 in. dia. with a very fine hardened and ground surface. The crank disc thrust face is also ground to a virtual polish.

Drive is conveyed to the prop by a substantial steel prop driver which engages by fairly abrupt mating tapers with the crankshaft. A small cardboard sleeve is fitted over the 3/16 in. shaft thread to butt up against the prop driver and serve the dual purpose of retaining the latter against loss, and acting as a centering device when props with over-size holes are used.

A 1/4 in. dia. gas passage conveys mixture from the large rectangular rotary valve port to the crankcase. Again the vital dimensions are very prodigious for the displacement, although, for a high speed engine, the valve overlap beyond top dead center is not excessive.

The cylinder is remarkable for the truly enormous port areas, and in order to minimize any gouging tendency between the edges of ports and piston, great care has been taken to remove all sharp edges, and the port extremities are not squared in the usual way, but radiused, in order to "lead" the piston and nullify the effects of any rock which may develop. It is probable that these ports are the largest it is possible to use without introducing serious galling of the piston.

In other respects, the cylinder follows

normal K & B practice with integral cooling fins, blued finish, and detachable head. Two tie bolts in line with the fore and aft axis of the engine retain the cylinder and head assembly to the crankcase with a plasticized gasket at the joint, and two more small screws supplement the cylinder head joint which is gasketed with the same material.

Bore finish and compression seal are excellent, with the lower 3/16 in. slightly tapered instead of the usual practice of tapering from the ports downward. This is no doubt necessitated by the large port area demanding more positive piston guidance.

The hardened steel piston is strong and very light, with a nicely filleted straight baffle which matches the bypass width exactly. The wrist pin holes are located slightly above the half length of the skirt in order to concentrate the side loading on the fitted portion of the skirt, which is relieved for a little over half its length, and thus further reduce the tendency to rock. The greater wall thickness required for wrist pin support does not have to extend so far down the skirt, which, of course, makes for a lighter piston and therefore reduces inertia.

A polished, drop forged aluminum conrod with reamed bearings and oil hole in the big end, and an 1/8 in. dia. hardened and ground steel wrist pin complete the moving parts, but before leaving them it should be pointed out that the success of this engine can be directly attributed to careful attention to apparently insignificant details. It is likely, for instance, that had the ports been sharp edged and square ended in the normal way, their size would have necessarily been considerably smaller to avoid excessive friction, and performance would have been correspondingly reduced. Quite a change from the days when hot engines could be recognized by their intake valves.

The deeply finned, green enameled cylinder head appears to be a magnesium alloy die casting, and is contoured to suit the piston crown. The four retaining screw holes are equally spaced, and the 1/4/32 short reach plug is centrally located. A K & B Standard plug is supplied.

An aluminum alloy pressure die casting with no subsequent machining constitutes the crankcase backplate, and four screws and a vellumoid gasket complete a very attractive little engine.

Starting the .15 is routine, although it seems to prefer a small exhaust prime both hot and cold, when it will usually start at first flip. The needle control is positive but not too sensitive, and being placed on the opposite side from the exhaust and having a fairly large control knob, is quite comfortable to adjust. The exhaust note is distinctive and easily identified, and considerably louder than one would expect.

TEST: K & B Torpedo .15

Plug: K & B Standard Short Reach, 1 1/2 volts to start; Fuel: Supersonic 1000; Running Time prior to Test: 2 1/4 hours; Bore: .595 in.; Stroke: .535 in.; Weight: 3 1/4 oz. (Note: Performance figures are average of two engines)

| Power Prop | RPM |
|------------|--------|
| 9 x 6 | 9,500 |
| 8 x 8 | 9,900 |
| 8 x 6 | 11,100 |
| 7 x 8 | 11,800 |
| 7 x 6 | 12,900 |
| 7 x 4 | 14,300 |
| Top Flite | RPM |
| 9 x 6 | 8,900 |
| 8 x 8 | 9,300 |
| 8 x 6 | 10,200 |
| 7 x 6 | 11,600 |
| 7 x 4 | 13,000 |

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| Ring Master | S-1 | 2.95 |
| F-51 Mustang | S-2 | 2.95 |
| Yak-9 | S-3 | 2.95 |
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| Power Boats | Kit | Price |
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| Richardson 27' Cruiser | B-1 | \$5.95 |
| Higgins 17' Speedster | B-2 | 4.95 |
| Chris-Craft 47' | | |
| Buccaneer | B-3 | 7.95 |
| Century Resoriter '20' | B-4 | 3.25 |
| Century Sea Maid '20' | B-5 | 2.95 |
| Chris-Craft 32' Cruiser | B-6M | 9.95 |

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|---|------|-------|
| Deluxe 34-pc. scale marine fitting set for Kit B-6M | B-6F | 3.50 |
| Chris-Craft 50' Catalina B-7M | B-7M | 11.95 |

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| Deluxe 66-pc. scale marine fitting set for Kit B-7M | B-7F | 4.95 |
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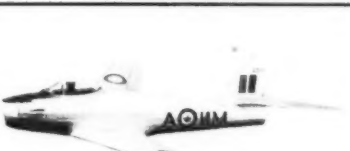
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Radio Control News

(Continued from page 27)

are taken from the contact arm and the shaft, which is soldered to the foil pattern. Electronically, a multi-vibrator as shown in Fig. 7 may be used. Increasing the value of C and/or R will decrease the frequency and vice versa. R1 is the main frequency control and R2 gives a finer vernier control if desired. The on-off time is essentially the same over the range of the frequency control. Omitted from the schematic is a 75 k 1/2 w resistor between the neon bulb and the relay.

Actuation for pulse length control is best done by a mechanical device. An electronic unit is too complicated to be practical for our application. Figs. 8-A and 8-B show two methods of obtaining a variation in the length of the pulses. Fig. 8-A is a drum about 1 1/2 to 3/4 in. in diameter and about 2 or 3 in. long. A pattern of thin brass or copper foil (.0005 to .001 in.) is cemented on the drum which is turned by a geared down motor. Moving the lever contact to either side of neutral will allow it to remain on the foil pattern either a greater or lesser time. Electrical contact is made through the contact lever and from the drum shaft, which has been jumpered by a short wire from the pattern to the shaft. Fig. 8-B shows a variation to obtain the same results. Moving the sliding plate to one side of the other allows the current to be on a different length of time.

By combining both pulse rate and pulse length, many variations can be had. Future articles will use the principles outlined above. We will also go into other pulse techniques in later columns. Incidentally, the mechanical drum pulser was used on certain German remote control devices in WW II. We urge all designers of new or novel equipment or gadgets to write in and tell us what they have. It may be of interest to other RC fans and worthy of publication.

CLUB NEWS

From Eldon Wilson of San Angelo, Tex., comes news of the first RC contest held in that area. The San Angelo boys took three of the first five places. Guess we shouldn't call them "boys" anymore since the youngest flyer is 28 and the oldest RC builder is 58.

E. S. Kratzet, President of the Radio Control Club of Detroit, writes of his club's 40 active members and of the flight of an RC model from Belle Isle across the Detroit river into Canada. No, this was no fly-away. It was a planned and controlled flight. Might be a good idea for more RC clubs to tackle cross-country flying.

Middle Atlantic Championships, August 30, Fentriss Naval Field. John Worth reports AMA precision pattern flown and all first three places were taken by employees of the National Advisory Committee for Aeronautics at Langley Field using the Lorenz two-tube receiver. First went to Helmut Kuehnell, Arden .09 original, Bonner escapement; Jim Cubbage, OK .074 Live Wire, second, using the Super-Aerotron escapement; John Worth, third, Bantam original design, Control Research escapement. All transmitters of the PE-157 power supply type. This group hopes to feature the first RC carrier event.

Earl J. Lombard, Washington, Pa., says to be sure to give the radio a final check after the engine is running, prior to launching. This shows up some defects such as loose connections, loose batteries in boxes and skipping escapements.

Hampton, Va., RC Roundup: September 26 and 27. Bill Woodall and Jim Ruffin from Georgia did some amazing work with rudder, elevator and engine control from a single channel Lorenz receiver. Their main feature was a fail-safe control, compact enough to go into a Half-A ship. Brayton Paul, Balti-

more, flew his low wing Bantam powered job using the Flyball Actuator mentioned in an earlier column, and our two-tube receiver. Excellent control was maintained.

Bob Schade gave a talk on model design and stability, highlighted with movies from the NACA wind tunnel research, showing work done on free flight models of similar size and weight. Suggested general remedy for erratic going in and out of turns, rocking back and forth, etc., is to decrease the angle of incidence and then re-trim to prevent diving. This can be done by increasing the angle of negative incidence in the stabilizer and perhaps a slight shifting of weight and removal of downthrust.

Don Hewes gave a talk on fiberglass for RC models and a convincing demonstration. Don's model was stopped by a building, completely smashing the engine, wing and radio equipment. However, only a crack appeared in the fiberglass fuselage.

This Hampton area RC Roundup was another attempt at a get-together, similar to the Selinsgrove meet we mentioned last month.

From Roots' Hobby Hut of Oakland, Calif.: Bootstraps and Live Wires seem to be the most popular plane kits with the Aerotrol, Macnabb 27 and Lorenz receivers holding up the radio end. Being from the West Coast, the Bonner compound escape-ment predominates, followed up by the Aerotrol and ED escape-ments.

NEW ITEMS

The Dover Engineering Co. of Dover, N. J., has an 11 channel transmitter, and as many receivers as desired for controlling model trains. The unit sells for \$24.95 with one receiver. This company also is featuring an automatic sequencing switch for transmitter control with lists at \$4.95. Does not need an external power source.

Acolite-International Co. of 12 Hollywood Ave., Hillside, N. J., has new clear acrylic plastic spray in an aerosol can, ideal for RC work. Receivers and transmitters sprayed with this material are rendered water and moisture proof, thus increasing over-all efficiency. Be careful to use masking tape over relay points and tube sockets or flea clips before spraying. The \$1.79 can should last the modeler through a large number of sprayings.

Liquid Neoprene, marketed by Pro-Chem Co. of 51 E. 42nd St., New York City. This rubberlike substance by DuPont is resistant to most fuels and once applied over cracks and pores of balsa wood, will not crack or chip.

Precision Control Labs of 2767 Stratford Rd., Cleveland Heights, Ohio, offers a small potentiometer measuring 3/4 in. in diameter. The resistance is 10,000 ohms and it sells for \$1.00. They also have a sub-miniature relay of 10,000 ohms resistance which sells for \$7.00. This relay weighs 1/2 oz. and may be used in any circuit drawing from 3 to 5 milliamperes. The points should handle 1 amp of inductive current (such as flows through coils) and should be protected by a spark filter for longer life.

Bill Effinger of Berkeley Models tells us of his company's plans to market a new RC model in time for spring flying. This is an amphibian by Henry Struck.

The Schmidt reed RC unit is now in full production and has won wide acclaim among the more advanced builders who have been flying with it this past season. Lightweight and compact design, together with the low battery drain, makes the receiver unique in its field.

QUESTIONS AND ANSWERS

Q—John M. West of Fergus Falls, Minn., asks why tubular ceramic condensers are specified in most schematics, why Lucite or Plexiglass could not be substituted for mica type plastics.

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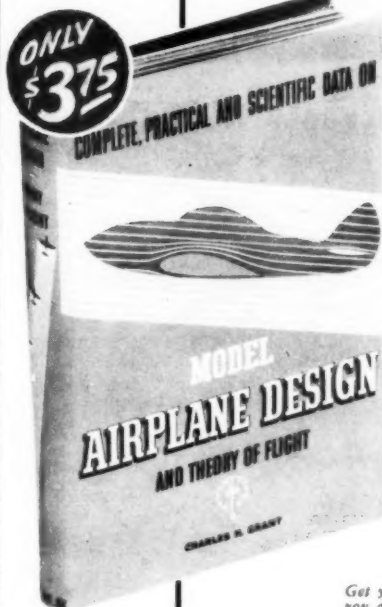
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A—The tubular ceramic condensers are used for their small size, higher voltage breakdown and lower price. At values of .001 mf and larger, the ceramic disc type units can and must be used as they are able to pack more capacitance into a smaller space. The larger values generally are used for bypass purposes and therefore are not critical as to exact value. Lucite or Plexiglass probably would make a very nice looking base or mount, but its low melting point makes it very difficult to solder to an eyelet which was placed through it. Rosin flux, dirt, etc., also would show up to a disadvantage on such a base.

Q—From New Albany, Ind., C. E. Broadus: Is 52 mc a free band and will 27 mc equipment work along side 52 mc equipment; also, what information on RC is available that a beginner can understand?

A—The 50-54 mc band is an amateur radio band and is *not* license free. The operator must have a valid "ham" license to operate on 52 mc.

Dual operation is quite feasible with 27.255 mc and several spot frequencies in the 50-54 mc band such as 50.5 mc and 52.5 mc, without interference. It must be kept in mind, however, that dual frequency is not recommended, even if on the license free bands of 27 and 465 mc, if contest work is planned. The reason for this is that the use of both frequencies on one plane prohibits anyone else from using either frequency at the same time. Perhaps the best information on RC modeling in book form is gained from the British publication *Radio Control for Models* by Mr. G. Honnest-Redlich.

Q—I seem to obtain excellent results on checks with my carrier and reed type equipment but the receiver is apparently dead when I start the engine. What could cause this? D. G. H. of New York City.

A—This is a condition that is carefully considered in large scale aircraft. When two dissimilar pieces of metal rub against each other, they create a potential, thus producing a minute arc. A sensitive receiver can detect this disturbance and hence we have malfunctioning. To correct this condition, be sure all yokes or other linkages are made from the same type of material, such as music wire, and use pieces of micarta for rotating or sliding bearings. Micarta is an excellent bearing material and will work just as well as brass or aluminum, without producing a potential when rubbed by a piece of metal. Large aircraft and radio manufacturers bond each item in the installation so that everything is at one potential and, in effect, one piece. This consists of securing a piece of bonding wire between each piece of equipment. In general, though, we would say it was unnecessary to go to these precautions unless one were actually troubled by the above conditions. **END**

Man At Work

(Continued from page 8)

golden autumn days, calm, warm, and lazy. Now this Live Wire wasn't a kit; it was built from a plan long before the kit came out and is a mere 2 1/2 lb. overweight, a fact which doesn't discourage the K & B .23 (or even the .19) at all. So there was this monster gliding back and forth over the field, preparatory to setting up the approach. Clouds of twittering swallows were milling around the ship. What a long glide! Say, isn't that ship looking small? Followed a spin to get out of the thermal. Imagine, a wing loading of 20 oz., a heavy-as-a-rock airplane, no more than 100 ft. off the ground, not even circling, and it goes up in a thermal.

Still testing the Citizen-Ship AR receiver. Can put the ship out as far as the eye can

see to turn it. During the glide on one flight had to make 11 turns of a spin—you know how a 6 1/2 lb. airplane comes down! —to resume flight at a more relaxing altitude. Despite the long spin, glide was timed at about four minutes. Also flying Jack Port's Nationals winning receiver on 27.255, a cute little job, about as big as an Aerotrol, but with a small hard tube. It, too, proves dependable. Least fussy job we have ever seen. In combination with a Control Master transmitter, this job can be pushed out until your knees knock.

Speaking of thermals and small field models, another son has been flying a Veco Dakota with a Cub .49-B. This is a tremendous plane-engine combination. One or two of the neighborhood kids usually go along and the crowd of them bedevil the Dakota all day long. They've got a couple of boosters dredged up from a phone company refuse box and plenty of O & R No. 2, swiped from the crate of fuel the old man is currently trying out. They know nothing about adjustments, starting motors, or anything else, yet this Cub and O & R start fast and do a real job.

For our money, the Dakota is the most ingenious free flight ever engineered. As you know, it is an all balsa biplane of U-control type prefabricated construction. The wings do not knock off, yet the plane absorbs a great amount of punishment, being frequently cartwheeled. It is heavy. The extraordinary feature is the built-in adjustment, which causes the ship to perform like a U-control goat. There is an excessive amount of left thrust which compels the Dakota to go to the left as soon as you hand launch it. Turns are very tight, nose high, and moderate altitude is picked up on every 360. Usually, a slight amount of right rudder tab keeps the left circle from going into the ground and produces an open right circling glide. But you can't open up that left circle. Too much right tab increases the left turn radius, then the nose falls off until the ship picks up extra speed. Now the nose rises too much—you begin to do a series of turn stalls until finally one stall is straight ahead, allowing the plane to recover to the right. But you are cooked the instant the Dakota goes right under power—it will spiral in every time.

As on the pylon model, slipstream is a more potent factor than torque. There's a lesson in that left thrust business. The plane always goes up and always is safe. Reminds us that Lud Kading has used as much as 18° left on an Infant pylon. Maybe it would be better to fly contest models left (using copious left thrust), right, instead of right, left? Despite the lack of glide and adjustments, this Dakota snagged a thermal and almost vanished out the top. It was recovered three quarters of a mile away. Apparently, any airplane capable of gliding is vulnerable to thermals. Joe Wagner did a right smart job of designing that little biplane.

Do you believe in breaking in engines? Some people say to run 'em slow and easy on the bench, while others say bench running overheats them, and recommend in-flight break-ins. Now comes the K & B .15 Torpedo with a warning note in very box that 45 minutes' break-in is necessary. It seems that, just after the war, when glow plugs took over, engines took a terrible beating. Ignition engines had closer tolerances than glow, frequently requiring six or more hours' slow running to break in. MAN at Work recalls free fliers running new Bantams an entire day. We have a two-speed from Foster, 305, ignition, which has had seven hours' run-in and is still too tight. Johnny Brodbeck tells us that the K & B .15 is built to the closest tolerances of any K & B

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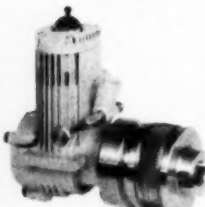


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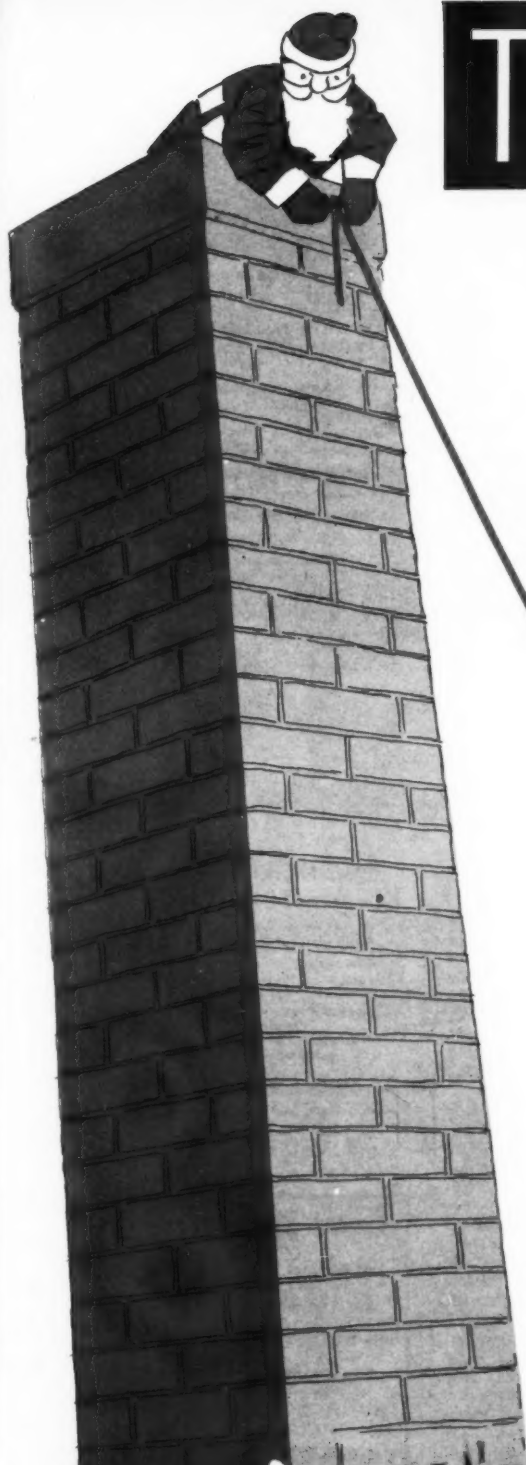
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"Imagine my surprise," says George Veazey, "when I opened the September MAN and saw, in the article Japanese Modeling, a picture of an F-80 model made to my order by Tenshodo's, in Tokyo." Well, George, imagine our surprise when we opened your letter! It's a small world! Veazey had the little F-80 made as a Valentine's Day present for the missus, back in the States. It is an exact duplicate of the F-80 which he pushed about Korea for better than 70 missions. You'll get a kick out of the markings, identical on plane and model. The tail and tip tank strips (see p. 23, Sept. '53) are the red strips of the 36th (Flying Fiend) Fighter-Bomber Squadron. Near the nose is painted a big bug with the words: Joanie's Modeler. Mrs. Veazey's name is Joan and the bug and word "modeler" stand for George's clubs, the Wilmington, Del., Modelers.

Forty-eight leading hobby manufacturers are participating in a nation-wide bandwagon tour, sponsored by Model & Hobby Industry. This traveling display, consisting of a big trailer, will visit dealers throughout the country. If you should get to see the display, take a look at the idea dreamed up by Herkimer for showing off engines. Eight engines are mounted in a circle and revolve between two series of mirrors... It's intriguing: you see hundreds of moving engines. Conrad's eternal moaning about the good old days prompted Frank Stone and George Aldrich to play a practical joke on Vic Stanzel. They clipped an ad from a 1938 issue of a defunct magazine, ordered two kits therefrom, and protested that if such kits weren't available, they should not be advertised. Like Conrad, they got it in the neck. Stanzel filled the order!... Fred Bell, Manchester, England, is working on a jet-sound plastic whistle to put in his ducted fan job. It's a toy police siren... Haddonfield Glo-Bugs holding Second Annual Polar Bear meet, January 10, Wallworth Park, Haddonfield, N. J. Brrr... Is it worth publishing articles about kid and beginner programs? We think so. One reason: "...The Erlanger Methodist Church," relates author Richard Wheelwright, "received inquiries regarding their model club activities from all over the United States—one even came as far as Australia—as a result of my Pee Wee Patrol which appeared in MAN." END



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The Boston Program

(Continued from page 23)

Events: General ones include HL and ROG stick for Classes A and B, and HL stick for Class C; HL glider, and flying scale. Special events cover ROW stick for Class A; Class B, cabin ROG and ROW; C, cabin ROG; and D, HL stick.

Model Specifications: Stick model—The stick or fuselage is composed of a solid piece of wood, may be braced. Rubber motor hangs underneath stick; Fuselage model—The fuselage is built up of a framework and covered with paper. Rubber motor is enclosed within. Landing gear and floats must support model. Hand-launched glider must not have more than 100 sq. in. wing area. Flying scale models shall not have wing area of more than 150 sq. in. Cross section of fuselage models shall be 3 sq. in. for Class B, and 5 sq. in. for Class C. All models except gliders must be paper covered, or covered with sheet balsa. Microfilm and similar materials may not be used.

Mimeograph many copies of these directions for general distribution to hobby stores. It is not usually economically possible to give prizes at these sessions, but something is needed as an incentive. What we did was set up a series of "Boston Model Records." We had fancy certificates printed stating the information about the record flight. The records include all the events listed, and in all the age groups. This really goes over. It helps at first because almost any flight can set a record the first session. Each month the fliers try to better the times. Some only go up a second at a time, but even this shows steady progress.

Take, for example, Class A stick. In the Junior Class, the first record set was about 1:02; the second session it went up to 2 minutes, the third to almost 3 minutes, and at the end of the season stood at better than 3 minutes. Remember these fliers were, for the most part, rank beginners.

Along with the rules and general information, the first session announcements should be included. Stress the hours, and how to get to the hall. Play up the records. If the kids have trouble getting small sizes of rubber, announce there will be rubber available at the meet. It is a good idea to state that there will be expert assistance to help beginners fly their models. This will give them some confidence. Another obstacle to be overcome is the almost complete lack of kits and plans for these types of models. There are exceptions. Jasco's Baby ROG and three series glider kits are perfect for this type of event. You will notice the three-view drawings with this article. Our club, the New England Wakefield Group, designed and tried several types of models to find the easiest and best flying, and settled on the two that are shown. The glider is perfect for low ceiling work, and is time tested, being easy to adjust. The B stick gives the youngster somewhere to start and poses no building problems. Both these plans were put on legal size mimeograph stencils. This keeps the cost way down, and makes for large scale distribution. One of these plans should go out with the rules and the contest announcement.

Distribution of all this material should be done by one or more of the wholesalers in the area. They cover all the hobby stores and are usually most willing to cooperate in such a long range modeling program as this. Subsequent announcements can be made directly to dealers. It is also a good idea to make up a dealer's information sheet, giving him the details and asking his cooperation and help. The cooperation of the hobby dealer on the local level can make or break undertakings of this sort.

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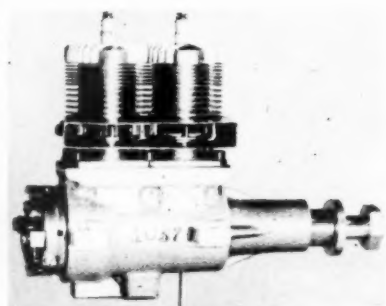
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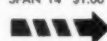
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down and assist. They can be lured by the fact that they themselves can fly for the "Records." This flying should be done before and after the scheduled hours of the session to give the helpers more time for the beginners during actual running hours. Needed items are a few indoor winders, and some 3/32 rubber. Get the name and address of everyone with a model airplane. One of the most important things that should be stressed is instruction to the entrants once they arrive. If it's the kid's first model, this is the make or break stage. The model *must* fly, and this is where the helpers come in. They should, almost by strategic force, take the airplane from the youngster and instruct him how to fly it.

Common errors that we noted are throwing the model with such force that it doesn't have a chance, or launching it at a too high angle from which it can't possibly recover. Correct launching technique is very important. Another thing to watch for is the fair flying model that has been only hand wound. Get this ship and explain to the builder the merits of a winder, and help him wind it up. His eyes will probably pop when he sees the difference. This is the stage when these youngsters start catching on.

After the first couple of sessions, attendance starts falling off. This is natural; what remains is the group you can really work with. You pick up and lose them from time to time, but your local area will determine how large the group will be. We found that one Saturday morning a month was the best time for these meets, and if you try to schedule the sessions at the end of the school vacations you will get better results.

The writer will be happy to answer inquiries addressed to this magazine. Sample plans and building instructions are available.

END

Stunt

(Continued from page 19)

model weighs 38 to 40 oz. and speed is 60 to 65 mph. Wing area should be 500 to 550 sq. in.

One of the operating tendencies of the wing is to yaw toward the center. The centrifugal force of the model does not wholly overcome this, plus the drag of the lines, and the sudden changes in engine rpm. When these yaws occur, the pilot is constantly jockeying the model and trying to keep it under control. To have good smooth stunts, the tension of the lines must not lessen.

Now you take a model of approximately 52 in. in span traveling 65 mph. The outboard wing is going much faster than the inboard wing, thereby developing more lift than inboard wing, which helps give more yaw in the model. The common approach to this problem is to set the rudder in the opposite direction of the flight circle. This produces yaw in the fuselage to fly outwardly from the flight circle. So the solution to the problem of yaw is to make the inboard wing longer than the outboard wing. Although the inboard wing will have more drag than the other, its increase in lift is appreciated in performance. Its appearance is obvious, but after flying a long time with it, you can really see the difference when you fly a model without it.

A wing must have a good airfoil. 15 per cent to 18 per cent thickness of the wing chord is best. We used to use a sharp leading edge. This made the model fly very smoothly, but now, with the new rule changes, it is better to have a blunter leading edge that is poppy and moves easily with the elevators. To prevent this over-movement we found that a longer tail moment was necessary and made smooth, tight turns.

Chord of the wing, approximately 10 in. should be in proportion to a wing span of

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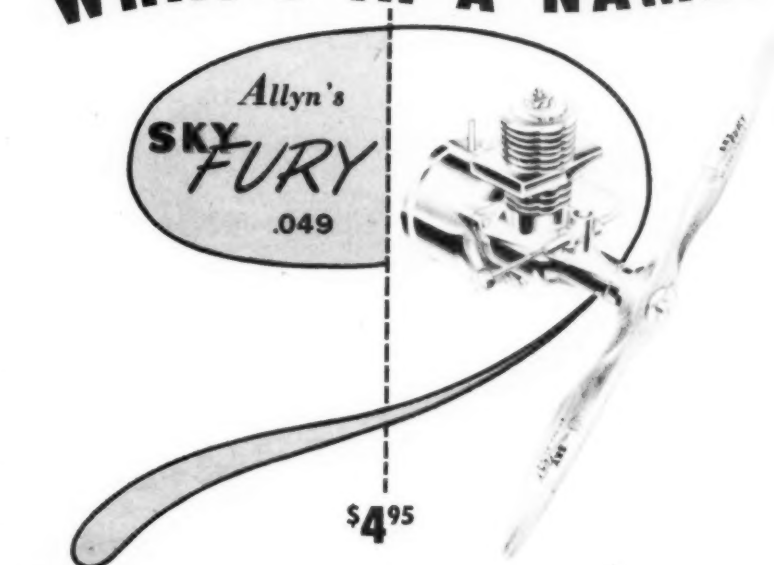
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52 in., ideal for a high performance model. Flaps are added to the trailing edge. This brings the chord and the appearance up to the right proportion. In the last few years, I've changed my wing tips and I am not flying straight chord wings. I flew straight chord wings in a certain well known model design and observed a bad buffeting and wing rocking effect in high winds. Besides, with unreliable tension on the lines, I lost points in smoothness and maneuver. I blamed it on too great tip and flap area.

So I designed a new model, raking back the tips and taking some flap area away. The model flew very well in high winds. I flew in winds up to 30 mph, and it certainly gave me an edge on contenders trying with straight chord wings, so in this respect, I would advise a sweeping tip or straight tapered wing, but by no means a tapered trailing edge. The trailing edge should be straight, and the flaps tapered, giving a tapered wing. Flaps on a model depending on length should always be tapered.

Wing must be strong to withstand the stresses in high performance, through D tube construction and a small spar in aft part of the wing, using 3/16 square, and 1/16 planking on leading edge, and a 3/16 square aft double spar gives unbelievable strength with a minimum of weight. All joints should be double-cemented, and the bellcrank area reinforced. Also, as far as possible in the outboard wing, a weight should be added. This should equal the weight of your lines. Its purpose is to overcome the weight of the lines, thus helping to hold the model out in maneuvers, and especially shows up in landings where speed of the model slows down enough for the weight of the lines to pull down the inboard wing. The actual weight added to a 52-in. model is approximately 3/4 oz.

The flaps very definitely improve performance, control, stability, and appearance. Control lines are maintained taut and responsive by subjecting the model to a constant outward-rolling force, sufficient at all times to exert tension on the lines, generated by a greater lift in the inboard wing than in the outboard wing, not only because the inboard wing is longer, but because the flap is also longer. A symmetrical airfoil, set at zero incidence, is not supposed to have much lift, but with flaps added it is very efficient, giving somewhat of an undercamber when in operation. The flap also obviates the tendency to side-slip even if the turning radius is large. A model with flaps can take off and land in a much shorter run than one without flaps, and this helps you perform acrobatics more tightly and smoothly. You've taken out that mush and stall, and actually have added lift to your wing when you needed it.

With the use of the flap, the lines are inclined rearwardly to the axis of the wing at less than a right angle to the fuselage, so that the yaw producing arm is considerably reduced, thus reducing the yaw to a minimum. In other models without flaps, to produce a staying out quality, the lines extend to more than a right angle, so that lines "lag" behind the flight position of the model. The lines act about a long lever arm and accentuate the yaw tendency. This tendency can be murder to tight maneuvers and slow downs caused by bad engine runs and excessive speed in high-speed stall-outs.

Flaps, to be effective, should be full span, as in a tapered wing, although they can and do work very good half span. They should be made of firm balsa wood of at least 3/16 in. thickness, shaped to an airfoil with 30 per cent of the wing chord at their widest point, tapering to the tips. The rod for the flaps should be 1/8 in. diameter music wire and at least 8 in. long. If flaps are too weak and not straight they will affect the flight, as a warped wing will cause wash-in and wash-out. In fact, by twisting the flaps opposite to

a known warp, you can correct a winging-in or winging-out tendency.

Flaps should move *only* 25 per cent of the elevator movement and elevator movement should be about 45°. Flaps moving more than 25 per cent will cause excessive drag, slowing down the model in maneuvers, and buffeting the wing. Another trick with flaps is to make the inboard flap 1/8 in. wider. This helps the model stay out, as explained, the inboard wing being longer.

I have found that a thicker tail section will give smoother and tighter maneuvers. This is because its stalling angle is so much greater. This would seem like a lot of extra work in building, but the way I do it doesn't take too much longer. I carve a soft firm balsa piece, cut to outline of stabilizer to an airfoil section, from 9 to 15 per cent thickness. Then cut out center portion, adding 1/16 pieces as ribs. Sand all the ribs to contour of horizontal and cover with paper or silk.

The power plant is where most stunt modelers fall down. First thing they do is put the engine on the bench and let it run its heart out. Sure it'll run, and run like blazes! You think this is breaking it in? I should say not! That engine is doing no pulling and you're even harming it when you run it this way. You should run the engine on the bench, yes, but only to become familiar with its starting. Do not run the engine over half an hour. Put the engine in the model, and if you know how to stunt already, start the engine off rich and do large horizontal eights. Listen to the sound of the engine and when the engine sounds as if it's leaning off too much, bring it down and level off. This procedure is one I go through every time and this makes the engine run under a load, and by the sixth flight, slowly leaning engine in each successive flight, I can do the entire flight pattern.

After two quarts of fuel have run through the engine under the conditions I have stated, the engine is either broken in or well on its way, since each individual engine varies. If after the engine is broken in by careful running without quite leaning out, it is being run under load when stunting, it should lean out, you must compensate for this by always setting the needle a little rich. With practice you can pretty well adjust it every time. If at any time in practice you should get a little too lean a setting, it is better to fly in and break the propeller rather than ruin a good engine.

Freezing up means short engine life and shows the fuel is either weak in lubrication, or leaned-out and heating too much. You can prevent this by being a little less eager to hear that engine whine, and by using a little care, and running a little richer. A lot of contests have been lost by leaned-out engines.

Tank design is very important to a U-Control model. Did you ever go to the field and see a top notch modeler get consistent runs every flight? He has placed his tank in exactly the center of the needle valve. In other words, the pick up tube is on the same level as the needle valve. The Fox, Veco, and the Torpedo, for example, are good suction engines, their fuel suction being as high as 17 in. For this reason I would advise cross-feeding of these engines; that is, picking up the gas on the outboard side and taking it over to the inboard side of the needle valve. This keeps the engine from leaning out in flight. The model's centrifugal force causes the engine to load up in flight with tank full, decreasing the load as the tank empties.

Cutting down the V in stunt tanks also helps to get consistent running. Adding a baffle in the center helps take that surge out of running caused by abrupt changes in flight. Tank should hold about 3.3 oz. of

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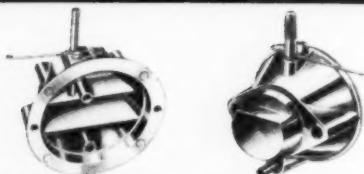
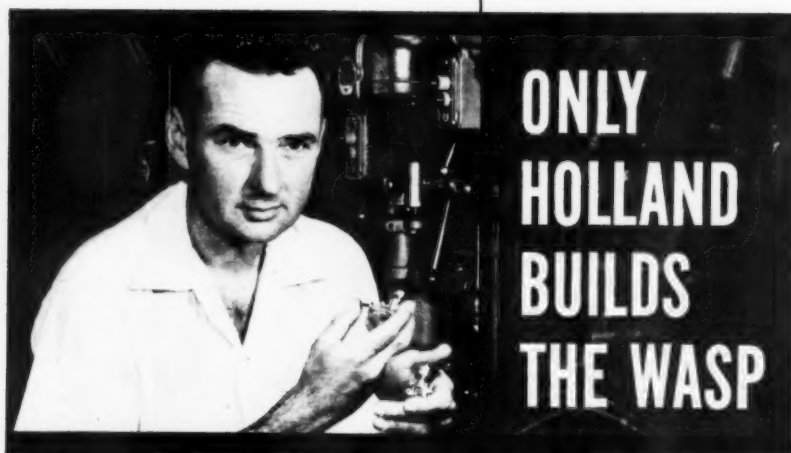
ENGINES

AIRPLANES



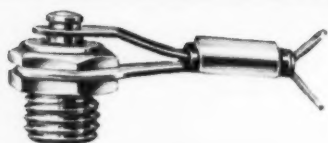
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fuel. This will give about five minutes of flying. AMA rules now call for five minutes of pattern flying. Going over this time limit loses points. A good way to help stop engine is to fly over the top and do a snap outside loop close to the ground. However, I would advise only experienced fliers to try this method.

The control system in the model must perform smoothly and the wire to the elevators must be properly braced to keep wire from bending when up-elevator is applied. The reason for this is that when up control is given, the wire control rod is pushing on the horn in the elevator. Since the model is flying through the air at 60 to 65 mph, it bends the wire if not braced for it, and you lose part of the control you applied. Modelers wonder why their airplane doesn't loop right side up as tightly as it does upside down. For upside down the control rod is pulling and not pushing. This applies still more in high winds, for then the pressure is greater.

An excellent way of getting good controls is to keep the bend angles down in the control rod, keeping it as straight as you can, for sharp bends mean a possible sag in control and more bracing. Usually only two braces are necessary and should allow just enough freedom of movement. A lot of fellows solder washers as keepers for the rod on the control horn. This causes trouble, because the soldering flux runs through the washer into the hole of the horn. This becomes stiff and causes controls to work hard. I use 3/32 in. music wire for the control rod and a 1/16 in. length of 3/32 in. interior diameter brass tubing on each side of control horn allowing just enough clearance for freedom. I oil all the bearing surfaces, and see that the wire and horns are clear of obstructions.

Another good point to consider is the bellcrank. The wire or cable you use as lead-out wire from the bellcrank to the outside of the wing will wear through, or cut through, and cause a crack-up. It doesn't seem as if this should happen, but it does. To prevent this, I drill a clearance hole for a gromet and insert the gromet in the hole and upset the one end, thread the cable through and wind with wire, and solder the winding and the cable to the gromet. This method prevents cable from constantly flexing and wearing on the bellcrank, and it also gives good smooth control.

There are several methods of painting a model and each modeler has a favorite method. So I would advise little attention in this direction, until you become quite adept at stunting, especially in the beginning. Chances are that the life of your model, while you are learning, will not be too long, although if you are careful, and have the right help, you should get along fine. As you progress in stunting, concentrate on a better paint job. Appearance points count high, so it is quite important that you have a smooth and well painted model.

You should, by all means, attend contests and enter them. Even if you think you haven't a chance, this will give you contest procedure experience, finding out what to do and when. A lot of fellows get nervous and upset when they enter a contest, so as you enter and become accustomed to procedures, your nerves will settle down, and contests will become a normal routine.

When you go to the contests, watch the top notchers go through the pattern, watch their style, learn how the maneuvers should be done, and when an opportune time comes, ask them your questions and tell them your troubles, and I am sure they will help you all they can. Modelers are a grand bunch of fellows.

Good luck to you. We'll be seeing you at the contests, and we'll be admiring your trophy.
END



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Driftwood

(Continued from page 20)

The fuselage sides are 1/16 x 3 in. sanded sheet balsa, with the aft end carrying a frame work of 1/8 x 3/4 in. strip balsa. The pylon consists of three layers of 1/8 in. sheet stock cross laminated for maximum strength. Place the pylon between the fuselage sides, space with 1/8 x 3/16 in. strips. This will fill the void between the sides and at the same time space the pylon. Both gears are installed prior to mounting the pylon. A block 3/4 in. thick is used fore and aft. Both the wing and tail rests are next installed. Take notice of grain direction. The firewall is 1/8 in. ply, 1 1/2 in. in dia. For added reinforcement a wood screw is used to secure the firewall to the pylon. A fairing ties in the pylon, firewall and wing rest.

The wing selection is of conventional design, excepting the method of joining the spars. Extend the spars beyond the joining dihedral ribs, then lap cement them in place to the ribs. Build the outer panels with 4 in. dihedral. Twin rudders are shaped from 4 in. wide, 1/16 in. sheet balsa and mounted to a conventional lifting stab.

Both wing and tail surfaces are covered with light weight Silkspar in your choice of color. If you have followed carefully the angular settings mentioned earlier in the text, little further trimming will be necessary.

A good glide is first obtained, then a few powered flights for full familiarization, and after that—away we go!

END



Harry Rice, "Mr. Cheminol," inspecting Sal Taibi's new class AB Spacer. Heading up the firm of Ohlsson & Rice, Mr. Rice is both an old time model man and power, glider pilot of some 4,000 hours.

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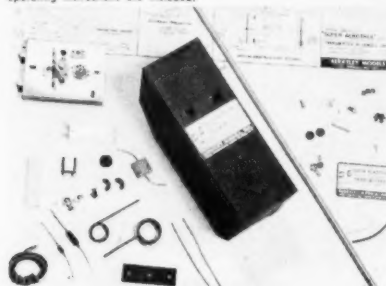
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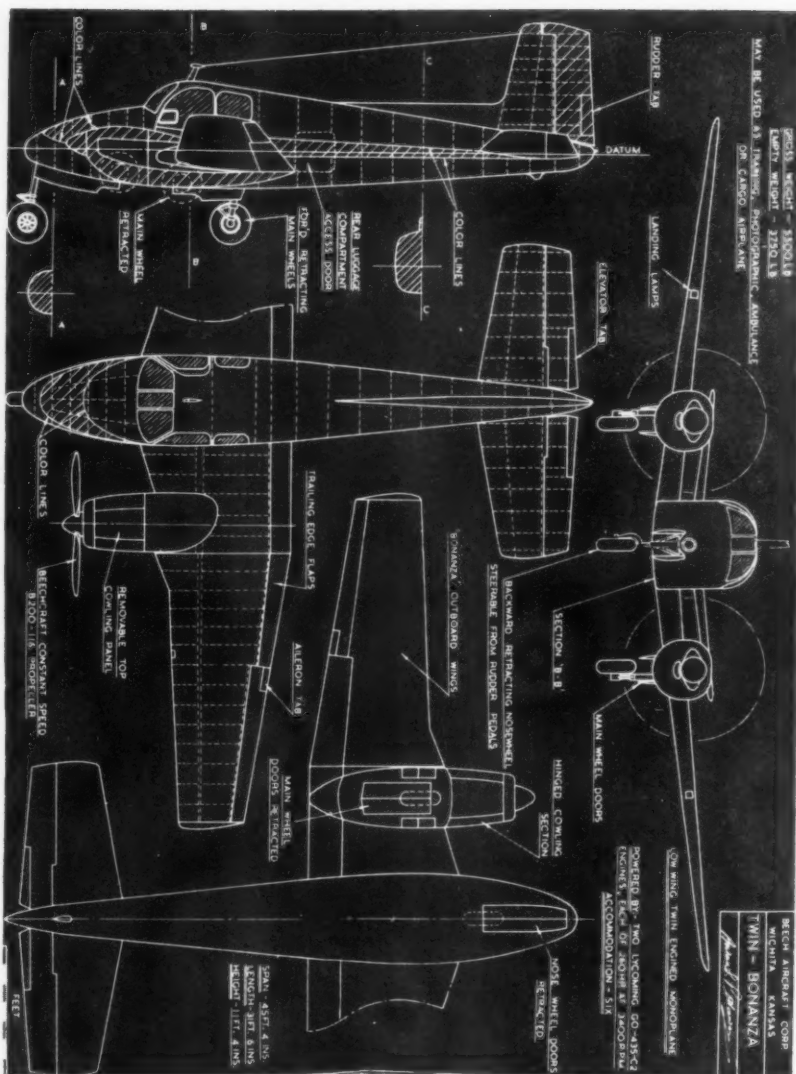
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TWIN BONANZA



Chuck Brebeck, of the Herkimer Tool & Model Works, Inc., poses with the nine trophies donated by his firm for awards in the Half-A free flight events at the recent Nationals held near Philadelphia.



TWISTER

(Continued from page 24)

stabilizer. Offset the rudder or add a small piece of weight (1/2 oz. lead) to the outboard tip. Fill in the slot that is exposed around the wing and fuselage. The pods are now cemented into place.

Bellcrank, pushrod and the elevator horn assembly are added now, and use plenty of cement when the elevator is joined to the stabilizer with fabric hinges. Finish the model by adding the wheels and tank. We used a stock tank and located it as shown in the photo. The line guides consist of a piece of bent wire double cemented and covered with fabric.

Dress the model up by painting it to your liking. Ours was doped light gray and the cabin was black. Silver would be a good choice. Coat the entire model with fuel-proofer. Fly the little Twister on 15 or 20 ft. lines. Remember to check out the elevator movement first before you fly. Don't over-control as the ship is sensitive to movement and will require little effort to fly. END

Editor's Note—As we go to press, Paul Palanek reports the results of further experimental flights with Driftwood, whose configuration is of interest to free flight fans. With no offset thrust, the ship has an efficient left hand climb. The addition to 2° right thrust causes the left turn to tighten under power. This is the reverse of offset effect on normal pylon models. Presumably, the twisting prop stream does not strike the left side of the pylon from beneath as on a regular pylon, but from the right side. This will create some discussion. Do you have a better explanation? Results of flying this sport model show the layout promises much for contest work, as a relatively few contest modelers have already discovered.

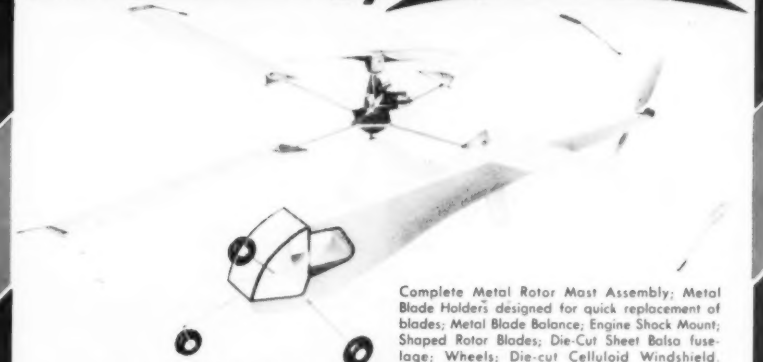
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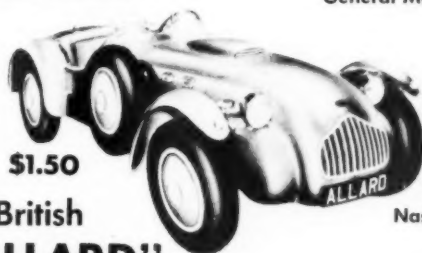
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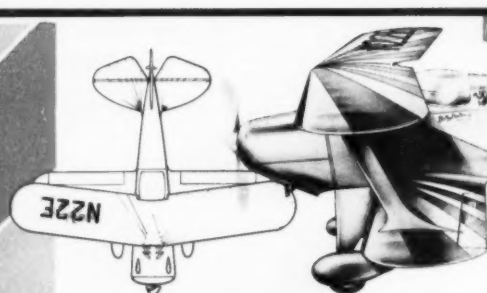
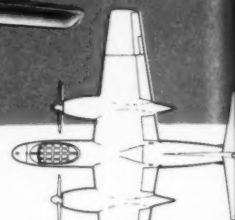
For two .045 to .099 Engines plus Jetex 100, 200 or Jetmaster 150 unit, for exact scale power. 27" Wingspan — 1/4" Scale from factory plans.

We urge you to see this kit. Few airplanes lend themselves to model work as well as this Atomic Carrier Bomber. It is designed for active flying, with none of the usual frailties. Carved fuselage and nacelles make it very easy to assemble. Climbs on one engine, uses Jetex (internally mounted) for scale effect and reserve power only. Perfect scale throughout!



\$6.95

North American "AJ-1 SAVAGE"



"PITT'S SPECIAL"

For .19 to .33 Engines — 25 1/2" Wingspan \$4.95

This colorful stunting biplane stands apart on any field. Decals include red flare design. Metal cowl, wheel pants, celluloid, etc.



CESSNA "195"

For .19 to .49 Engines — 36" Wingspan

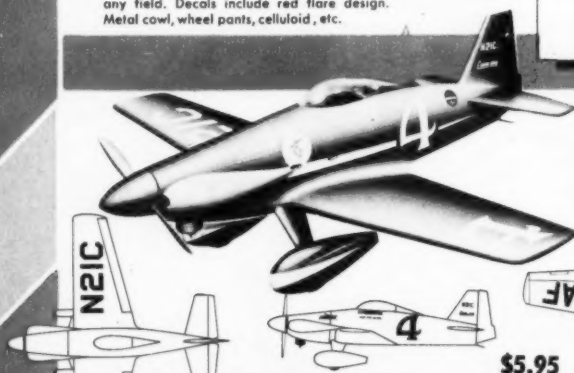
This beautiful lightplane features Step-Keel construction. Formers are positioned by a removable jig. Metal cowl, die-cut parts.



North American "T-28"

For .23 to .36 Engines — 30" Wingspan

This new Air Force Trainer aligns itself on the Step-Keel, included in kit. Tri-cycle landing gear, metal cowl, bubble canopy, U-Control.



"MINNOW"

Cosmic Wind

For .09 to .36 Engines — 28" Wingspan

Probably the most famous Goodyear Racer of all. Step-Keel Fuselage, wheel pants, metal spinner, cowl, complete decals, canopy, U-Control.



North American

"AT-6 TEXAN"

(U.S. Navy Designation SNJ-5)

For .19 to .33 Engines — 31" Wingspan

\$4.95

Authentic and complete down to both Army and Navy decals, the AT-6 is one of the most popular kits of all time. Performance is excellent.

for the finest in flying scale designs—

GIFT SUGGESTIONS:

SELECT THEM, AT YOUR LOCAL HOBBY SHOP

Autotroliners

North American "P-51 MUSTANG"

37" Wingspan — For .19 to .35 Engines

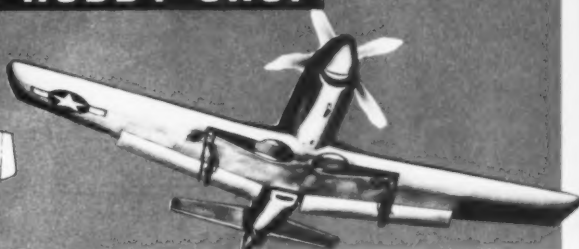


\$4.95

Republic "P-47 THUNDERBOLT"

40 1/2" Wingspan — For .29 to .65 Engines

History was written with this famous fighter of World War II. Fully automatic wing flaps and engine throttle control make it possible to duplicate the full scale counterpart in flight.



\$5.95

For the detail conscious model builder this kit is a must. Landing gear and tailwheel is retractable and extensible in flight. Flaps, elevator and rudder control are operated through bellcrank.



\$4.95

Grumman F-8-F BEARCAT

35 1/2" Wingspan — .29 to .65 Engines

Known as one of the fastest climbing fighters of all time, the Bearcat is an excellent subject for Carrier Deck Flying. "Autotrol" rudder operation eliminates slackening control lines.

"CHAMPIONSHIP" 1/2A FLYING SCALE

These full One-Inch Scale models have been designed for free-flight flying, and have proven themselves on the contest field. .035 to .049 engines, CO₂ or rubber power is suitable. For control line conversion, .049 to .099 engines are advised. Die-cut balsa parts.

"FAIRCHILD" FIRST IN OPEN AT '53 NAT'S.

\$1.95



CULVER "V" 29" Wingspan

This low-wing sport plane turns in long stable flights. The tricycle landing gear adds realism to landings.

\$1.95



INTERSTATE CADET 35" Wingspan

A nine minute single flight at the 1951 Dallas Nationals is the best measure of this model — a 3 time Nationals Winner!

\$1.95



PIPER SUPER CRUISER 35 1/2" Wingspan

This model won 1st place in the Open division at the 1952 Los Alamitos Nationals. Plans show pontoon details. Wheels in kit.

\$1.95



STINSON SENTINEL "L-5" 33 1/2" Wingspan

This model is a consistent winner at National Meets. It is a commercial version of the Army's "Flying Jeep."

\$1.95



STINSON VOYAGER "150" 34" Wingspan

Equipped with wing slots, this authentically detailed model flies with the best. Designs in this series have been chosen for performance.

\$1.95



FAIRCHILD 24 "RANCHER" 36 1/2" Wingspan

Largest in the series is the never to be forgotten Fairchild. Stable, strong, detailed, it is ideal for contest experimentation.

\$1.95



AERONCA SEDAN 34" Wingspan

Featured as a landplane, plans show pontoon details for those desiring the added thrill of water take-offs. Finished model is really spectacular.

\$1.95



CESSNA "140" 33" Wingspan

The clean lines and stable plan form of the Cessna make it ideal for "1/2 A" or rubber power. Contest potentialities are unlimited.

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If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.

MUCH MORE- FOR YOUR GIFT MONEY



\$4.95

Berkeley's CURTISS HAWK "P-6E"

For .09 to .15 Engines — ¾" Scale — 23¾" Wingspan

- Deep Drawn Metal Cowl!
- Stamped Metal Wing Struts!
- Formed Metal Wheel Pants!
- Metal Rudder, Elevator Hinges!
- Formed Wire Landing Gear!

- Jim Walker "U-Control" System!
- "Autotrol" Rudder System!
- Rubber Wheels, Hardware!
- Authentic Decals in 4 colors!
- Full Size Detailed Plans!

- Shaped Fuselage Sections!
- Side Profile Assembly Keel!
- Shaped and Notched Wing Edges!
- Die-Cut Balsa and Plywood!
- Celluloid, Covering Tissue!

Controliner

Designed by Don McGovern and Bill Effinger

The Curtiss Hawk "P-6E" is one of the great historical models of the Air Force. It was our best pursuit ship of the early 1930's. Berkeley's model is authentic, scaled without deviation from rare service manuals supplied to us by the Air Force Technical Museum. The complete decal set, the famous "17th Pursuit Squadron" from Selfridge Field, Mich. make it a really beautiful model to own and fly.



Army Liaison YL-24 "HELIOPLANE"

Variable Camber Wing for Two-Speed Radio Control Flying
For .049 to .14 Engines — 39" Wingspan — 1" Scale

\$3.95

Operating wing flaps may be used for two-speed flight. Depress 10° for free-flight, 25° for slow radio control flights, or raise 5° for high speed flight. Fuelproof decals; shaped and die-cut parts, wheels, etc. Detailed full size plans show radio installation.



"SHOESTRING"

For .14 to .36 Engines — 28" Wingspan

\$5.95

This Continental Trophy winner makes a perfect 1 ½" scale control line model. The kit includes genuine Jim Walker "Control"; metal hardware; formed metal wheel pants; metal spinner; formed sheet metal landing gear; metal bushed rubber wheels; die-cut balsa; plastic bulkhead; canopy; fuelproof decals; hardwood mounts; die-cut balsa; wood; covering material; full size detailed plans.



FIRST IN JUNIOR & OPEN
AT 1953 NATIONALS

SEMI-SCALE STUNT

"P-40 WARHAWK"

For .19 to .36 Engines — 45" Wingspan

\$4.95

This beautiful semi-scale stunt control line won first in Open and first in Senior at the Tangerine Internationals. Die-cut balsa; silk-screened celluloid canopy; complete metal hardware including Jim Walker "U-Control"; metal cowl; fuelproof Flying Tiger decals; stunt flaps.



Cessna L-19 "BIRD DOG" \$2.95

For Free-Flight Gas — Control Line — Rubber Power

.035 to .049 Engines for Free-Flight .049 to .099 Engines for Control Line

In active duty in Korea, this new liaison plane is perfect in proportions for model work. Plans show it as a free-flight "½ A" gas, with details for rubber and control line conversion. Fuelproof decals, die-cut balsa, plywood and celluloid; shaped and notched wing edges; formed gear, etc.



buy **BERKELEY** at your local dealer!

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Santa Knows... DO YOU?



**CHECK LIST FOR GIFTS
THAT ARE SURE TO PLEASE**
Available at all fine hobby stores

- ☐ K & B INFANT TORPEDO
- ☐ K & B TORPEDO .035
- ☐ K & B TORPEDO .049
- ☐ K & B TORPEDO .15
- ☐ K & B TORPEDO .19
- ☐ K & B TORPEDO .19 2-SPEED
- ☐ K & B TORPEDO .23
- ☐ K & B TORPEDO .29
- ☐ K & B TORPEDO .32
- ☐ K & B SUPERSONIC FUELS
- ☐ KIWI 1/2 A FREE FLIGHT KIT
- ☐ KIWI "A" FREE FLIGHT KIT

Yes, Santa knows that the surest way to a boy's heart is to give him one of the famous K & B TORPEDO ENGINES or K & B Quality Line Accessories...Try it yourself this Christmas...you'll have one of the happiest boys in the world at your house.

Psst, Fellows-

*show this ad to Mother and Dad
... you get better results that way.*

TORPEDO
ENGINES

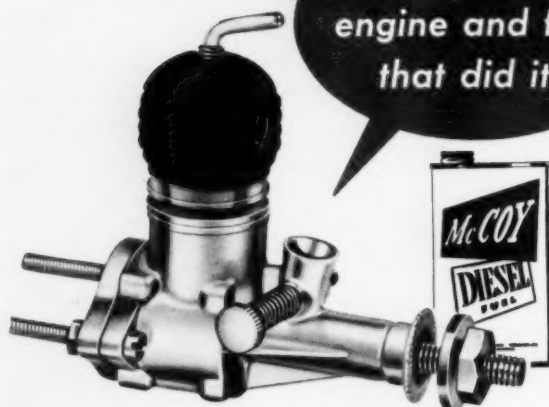


K & B MANUFACTURING CO.
224 East Palmer Avenue • Compton, California

FOR FUN OR TROPHIES

"McCOY
helped make me a
champion!"

This is the
engine and fuel
that did it!



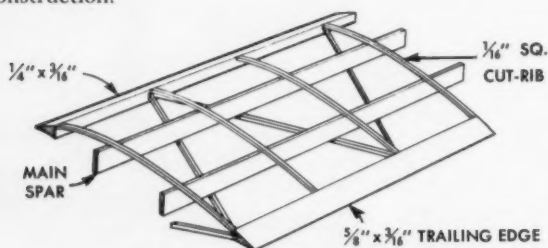
Meet **Jim Bowers**, of Cleveland, Ohio. He entered competition in 1951, winning Outdoor and Indoor Junior high point trophies and the Senior Indoor in 1952-53. His flying skill won him successive trips to the Detroit Internationals in 1951-52-53.

Read Jim's own story of how he became a 1953 national champion.

Here's How It Was Done...

"My first place time of eight minutes, 15 seconds for the $\frac{1}{2}$ A PAA Load event at the '53 nationals was done with a McCoy .049 Diesel and McCoy Diesel fuel.

"... My plane was revised from the plans of a PAA Master. Here is a small sketch of the wing and stabilizer construction.



"...I used very light wood in the whole model. It weighed, ready to fly:

| | |
|-------------------------|----------|
| Wing | .822 oz. |
| Stab | .378 oz. |
| Fuselage | 3.86 oz. |
| Complete with engine .. | 5.06 oz. |

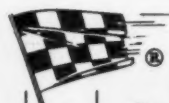
"I used a 6 $\frac{1}{2}$ x 4 Tornado prop with McCoy Diesel fuel. I used a pop-up stabilizer for dethermalizer; tilted the stab for turn in glide. Entire plane was covered with Jap tissue and doped with clear Aero Gloss. I streamlined the fuselage and made a triangular cross section. Entire fuselage was made up of $\frac{1}{16}$ " sheet balsa. Wing mount was rectangular for more stable wing mounting."

Jim Bowers
CLEVELAND, OHIO

So...Follow Jim Bowers' lead and be a champion—get a McCoy engine. And use McCoy fuels for championship performance, for every engine regardless of model, make or size performs better on McCoy fuel.

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